# PIT and QUARRY

COPYRIGHT REPORT.

TO THE AMERICAN PEOPLE:

Your sons, husbands and brothers who are standing today upon the battlefronts are fighting for more than victory in war. They are fighting for a new world of freedom and peace.

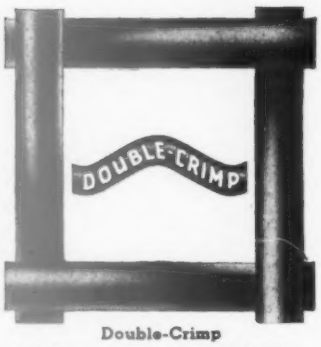
We, upon whom has been placed the responsibility of leading the American forces, appeal to you with all possible earnestness to invest in War Bonds to the fullest extent of your capacity.

Give us not only the needed implements of war, but the assurance and backing of a united people so necessary to hasten the victory and speed the return of your fighting men.

William D. Leahy
Douglas MacArthur Ernest J. King
Dwight D. Eisenhower Chester W. Nimitz
H. H. Arnold

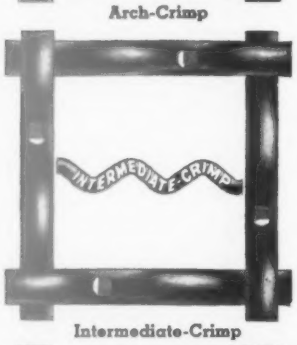
JUNE 1945

JUN 15 1945



Double-Crimp

Arch-Crimp



Intermediate-Crimp

Flat-Top

# "The Perfect"

## Wire Cloths and Screens

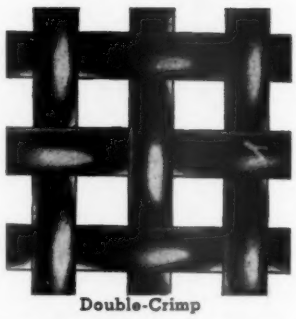
We have been specialists for many years in the making of precision wire cloths, wire screens and woven wire products.

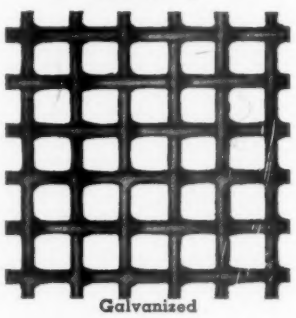
We apply our same precision principles in fabricating wire cloths into finished industrial units, for production or processing equipments or for permanent parts of countless industrial products.

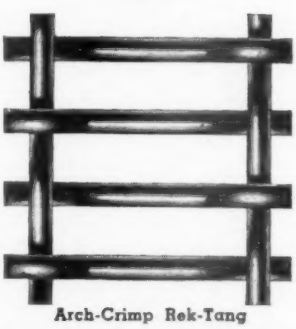
We invite your inquiries for wire cloths of all commercial metals or alloys or weaves, in continuous lengths or cut to size, or processed to meet your individual requirements.

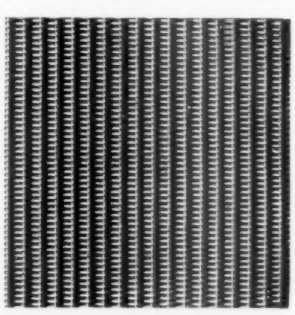
| "Perfect" alloys and metals | "Perfect" Wire Cloth weaves | "Perfect" Wire Cloth Processing | "Perfect" Wire Cloth products |
|---|---|---|---|
| Super-Loy | Arch-Crimp | Bending | Baskets |
| Steel | Coiled | Binding | Circles |
| Galvanized | Double-Crimp | Brazing | Cones |
| Tinned | Double-Fill | Calendering | Crates |
| Stainless Steel | Dutch | Clinching | Cylinders |
| Nickel-Chromium alloys | Filter | Cutting | Discs |
| Aluminum | Flat-Top | Dipping | Forms |
| Brass | Herringbone-Twill | Dishing | Leaves |
| Bronze | Intermediate-crimp | Flanging | Lengths |
| Commercial Phosphor | Rek-Tang | Flattening | Panels |
| Copper | Selvage-Edge | Forming | Pieces |
| Monel Metal | Straight-Warp | Framing | Racks |
| Nickel | Stranded | Galvanizing | Ribbons |
| Any special alloys available in rod or wire form | Sta-Tru | Painting | Rolls |
| | Triple-Warp | Shearing | Sections |
| | Twilled | Slitting | Segments |
| | Twisted-Fill | Trimming | Spaces |
| | Twisted-Warp | Arc-Welding | Strips |
| | | Gas-Welding | Template shapes |
| | | Spot-Welding | Trays |

We will follow your specifications and blue-prints exactly as your production engineers have prepared them—or we will submit suggestions for your approval.


Double-Crimp


Galvanized

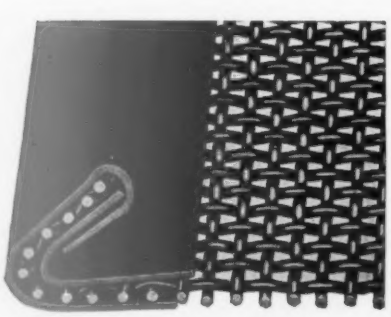

Arch-Crimp Rek-Tang


Dutch Weave

## The LUDLOW-SAYLOR WIRE COMPANY

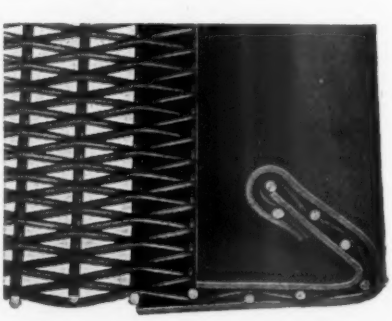
**Newstead Avenue & Wabash Railroad**

**ST. LOUIS 10, MO.**



LUDLOW-SAYLOR PRECISION FABRICATING makes vibrating-screen decks and jackets that are easily handled — quickly installed — need fewer adjustments and renewals.

Illustrations suggest only a few of the many available types of wire cloths and woven wire screens, which may be custom-finished with attachments to fit your particular processing installations.



# "TOUGH" HANDLING JOBS MADE EASY WITH LINK-BELT CONVEYORS

14-ton load of limestone, ready for dumping into receiving hopper of inclined Link-Belt apron conveyor feeding the primary crusher, located nearby on quarry floor.

● Here's an excellent example of solving a "tough" handling job at the Warner Co.'s Cedar Hollow plant. The problem was how to get enormous lumps of limestone blasted from quarry face, into primary crusher at a uniform rate, with prompt release of quarry trucks, and without choking or stalling the crusher. Link-Belt engineers worked out a system and installed a specially designed apron conveyor, 5-ft. wide and 60-ft. centers, inclined 25° from horizontal, with a capacity of 300 T.P.H. The hopper was built to withstand the terrific impact of 14 tons of rock dumped from truck. Lumps measuring 4 to 6 ft. across and weighing 2½ tons are handled. Crushed stone is fed uniformly by a reciprocating feeder to a belt conveyor extending to secondary crusher.

Check your materials handling and power transmission machinery plans with Link-Belt engineers.

**LINK-BELT COMPANY**

Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Dallas 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8. Offices in principal cities.

Illustrating conveyor apron, bottom of truck dump hopper, and the takeup bearings which support the conveyor foot shaft.

View of fully loaded Link-Belt apron conveyor from truck dump hopper to primary crusher. Large lump in foreground measured 6-ft. across. In background is inclined belt conveyor delivering crushed stone to secondary crusher.

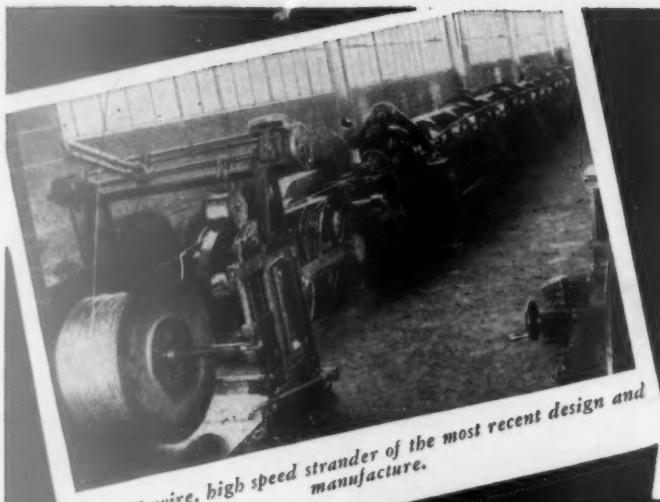
**LINK BELT CONVEYORS**

PREPARATION EQUIPMENT . . . POWER TRANSMISSION MACHINERY

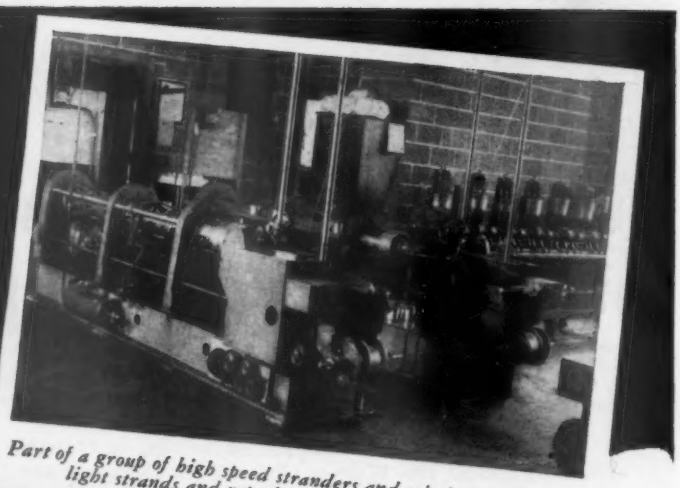
OTHER LINK-BELT EQUIPMENT INCLUDES: Complete Sand, Gravel and Stone Washing Plants . . . Ready-Mixed Concrete Plant Equipment . . . Lime Handling Equipment . . . Screens (vibrating, rotary and conical) . . . Washers and Classifiers of the screw, log, flight, Shaw and conical types . . . Dewatering Rotoscoops and Screw Conveyors . . . All Types of Elevators and Conveyors . . . Roto-Louvre Dryers and Coolers . . . Skip Hoists . . . Car Spotters . . . Portable Conveyors and Bucket Loaders . . . Silent and Roller Chain Drives . . . Speed Reducers . . . Variable Speed Transmissions . . . Chains (Malleable Iron, Promal and Steel) . . . Sprockets . . . Elevator Buckets . . . Gears . . . Clutches . . . Couplings . . . Self-Aligning Ball and Roller Bearing Units . . . Babbitted Bearing Units, etc. Catalogs on request. 2007



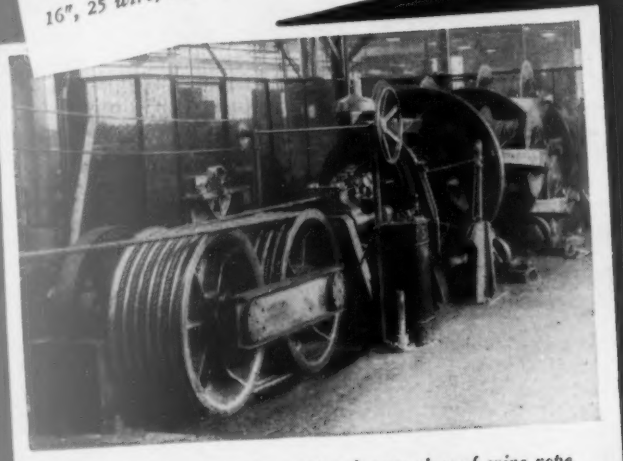
PIT AND QUARRY, June, 1945. Vol. 37, No. 12. Published monthly by the Complete Service Publishing Company, 538 South Clark Street, Chicago 5, Ill. Subscription price $2 for 1 year in the U. S. and possessions, Canada, Central and South America; elsewhere $1 additional for each year. Single copies 25 cents. Entered as second-class matter February 28, 1932, at the Post Office at Chicago, Ill., under the Act of March 3, 1897.



16", 25 wire, high speed strander of the most recent design and manufacture.



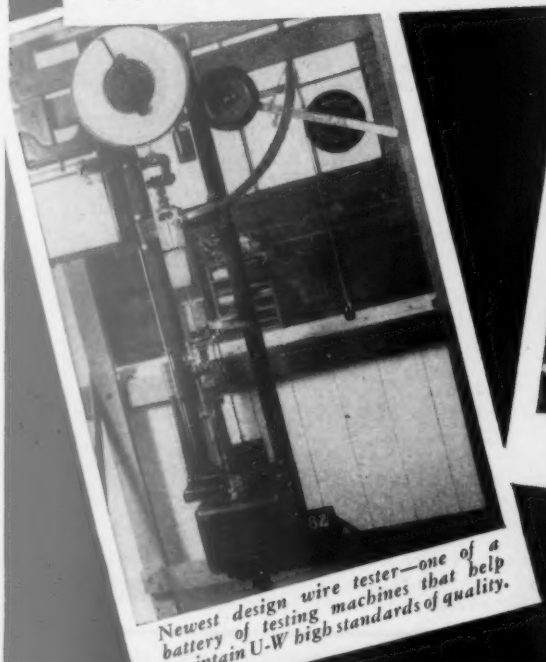
Part of a group of high speed stranders and winders for making light strands and rope for aircraft and other uses.



32", 6 bobbin closer for making larger sizes of wire rope.

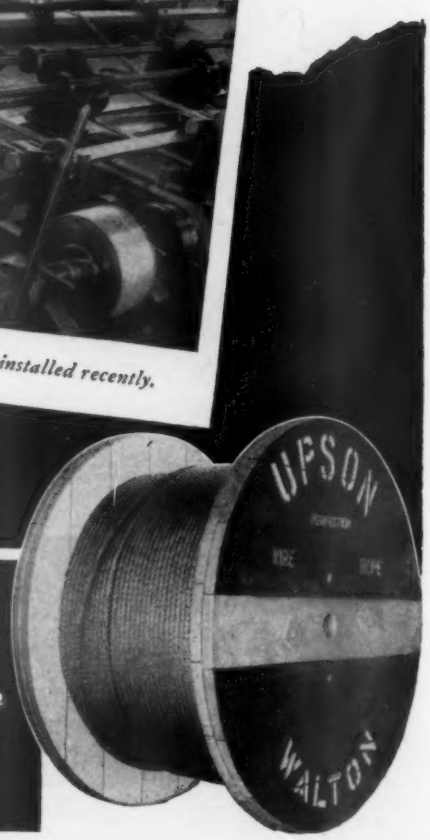
## THE NEWEST, FINEST EQUIPMENT

## ...Another reason Upson-Walton Wire Rope is Better Wire Rope



Newest design wire tester—one of a battery of testing machines that help maintain U-W high standards of quality.

16" winder, one of many which have been installed recently.




# THE UPSON-WALTON COMPANY

*Manufacturers of Wire Rope, Wire Rope Fittings, Tackle Blocks*

MAIN OFFICES AND FACTORY: CLEVELAND 13, OHIO

114 Broad Street, New York 4 — 737 West Jackson Boulevard, Chicago 6 — 241 Oliver Building, Pittsburgh 22

# THE "PIT" CHAMPION
## can take it

YEARS of standout service prove Goodyear's Hard Rock Lug the best tire for heavy hauling over rocky, tire-killing ground in mine and quarry pit work.

It takes tough pounding longer because it's armored with extra-heavy undertread—and with massive lugs that extend well over the shoulders and *tread-armor* the sidewalls against cuts and gouges.

Always toughest of all, this rugged bruise resister—built from materials available today, including the mandatory amount of synthetic rubber—is now tougher than ever because its Rayotwist body—made from Goodyear's patented rayon cord—*is the strongest body we've ever used in a work tire!*

Add another plus—that self-cleaning, universal two-way tread with no rights nor lefts, same powerful grip reverse or forward—and you have all the reasons why more and more haulers make Goodyear Hard Rock Lugs first choice to move heavy loads in really rough going.

Rayotwist—T. M. The Goodyear T. & R. Co.

*Goodyear Hard Rock Lug tires on Euclids—hauling coal in strip-mining operation*

THE GREATEST NAME IN RUBBER

# GOODYEAR

MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND

# UP WITH SAND AND GRAVEL...

# DOWN WITH COSTS!

This variable-speed, 8 cylinder Cooper-Bessemer diesel, rated 230 hp at 350 rpm and direct-connected by flexible coupling to a centrifugal counterflow gravel pump, has established a notable record of efficient and economical performance in Flint Sand and Gravel Company's dredge at Bluff Creek.

$20.00 saved daily—a good example of what a well-chosen diesel offers in dredging operations aimed at high output, continuous performance and low power costs.

After careful consideration, the Cooper-Bessemer multi-speed diesel shown at right was selected for continuous year-around service at the Bluff Creek location of the Flint Sand and Gravel Company, subsidiary of Jahncke Service, Inc., New Orleans. Compared with their other operations, electric powered, they have reduced operating costs by $20.00 daily while averaging 28 cars of gravel and sand per day through a 470 ft. pipeline. The Bluff Creek dredge is doing a real job and company officials are convinced that diesels for dredging are a decidedly profitable investment.

Efficient, reliable Cooper-Bessemer diesels, ranging from 50 to 2000 hp are giving outstanding service in many types of prime mover installations. The nearest Cooper-Bessemer office will gladly give you complete information on the proper diesels for your particular power requirements.

THE Cooper-Bessemer CORPORATION

Mt. Vernon, Ohio • Grove City, Pa.

New York Washington San Francisco, Calif. Seattle, Wash.
Houston Dallas Tulsa Shreveport St. Louis Los Angeles

BUILDERS OF DEPENDABLE ENGINES FOR 112 YEARS

# BUILD BETTER *Dams*

## . . . with aggregate from a CEDARAPIDS UNITIZED PLANT

On those big jobs where tonnage of aggregates runs into the hundreds of thousands, the difference of a few cents per ton in production cost may mean profit or loss to the contractor. That's where the big Cedarapids Unitized Plant with its high capacity and low operating costs pay big dividends.

This super crushing plant handles material in a continuous flow from quarried rock to delivery trucks at the rate of 150 to 200 tons per hour. The big primary with its 1000 sq. in. jaw opening sets the pace for the entire plant taking the biggest rock with ease. A smaller jaw crusher and roll crusher in the secondary unit then reduce the oversize to the wide range of sizes to meet all aggregate specifications. Each unit is mounted on a pneumatic-tired truck ready to attach to a truck-tractor. Costly dismantling and erecting time have been eliminated so idle time is kept to the minimum.

Get ready for those BIG postwar jobs now. With a Cedarapids Unitized Plant to produce the aggregate at lowest cost you'll be sure of getting your share.

**IOWA MANUFACTURING CO.**
Cedar Rapids, Iowa

**THE IOWA LINE**
*of Material Handling Equipment Includes*

ROCK AND GRAVEL CRUSHERS
BELT CONVEYORS
STEEL BINS
BUCKET ELEVATORS
VIBRATOR AND REVOLVING SCREENS
STRAIGHT LINE ROCK AND GRAVEL PLANTS
FEEDERS—TRAPS
PORTABLE POWER CONVEYORS
PORTABLE STONE PLANTS
PORTABLE GRAVEL PLANTS
REDUCTION CRUSHERS
BATCH TYPE ASPHALT PLANTS
TRAVELING (ROAD MIX) PLANTS
DRAG SCRAPER TANKS
WASHING PLANTS
TRACTOR-CRUSHER PLANTS
STEEL TRUCKS AND TRAILERS
KUBIT IMPACT BREAKERS

# NEW WARTIME

**Socony-Vacuum now offers Complete Lubrication Service for Contractors—a service specifically designed to fit the unique requirements of Your business. Read how it helps you meet and beat contract deadlines—helps you keep your equipment on the job full time!**

SOCONY-VACUUM OIL COMPANY, INC., and Affiliates:
Magnolia Petroleum Co., General Petroleum Corp. of Calif.

# EXPEDITER!..

ARE YOU merely getting oil and greases for your lubrication dollars? You *can* get more!

Socony-Vacuum's New Service for Contractors includes *many* practical helps that expedite work—save time—out on the job, in the maintenance department, all through your operation!

Socony-Vacuum's Complete line of quality products—exactly the right oil or grease for every piece of equipment you use—means more efficient protection, less chance of breakdowns disrupting your equipment "teams." You save hours in the field and, because you can order all these products from *one* source, you save bookkeeping and follow-ups in the office, too.

In addition, your Socony-Vacuum Representative is *ready to help you reduce inventory problems* by arranging regular on-the-job deliveries—*to provide job-proved maintenance schedules and ideas* adapted to your individual needs—*to help train inexperienced men* on the "How, Where and When" of Correct Lubrication—*to call in engineering aid* when needed.

Why be satisfied with fuels and lubricants, alone? Get more in-service hours from your equipment with Socony-Vacuum's Complete Service for Contractors!

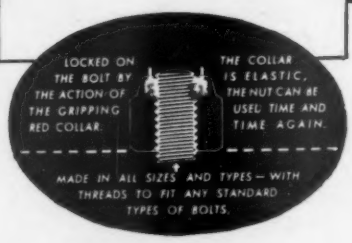
**"ON YOUR STAFF—BUT NOT YOUR PAYROLL"**
**—Your Socony-Vacuum Representative**

CORRECT LUBRICATION FOR EVERY PART OF EVERY MACHINE YOU OPERATE . . .
PLUS
1 ENGINEERING HELP on time-losing operating problems; 2 TESTED MAINTENANCE SCHEDULES that minimize service man-hours—keep equipment on the job; 3 PROMPT, DEPENDABLE DELIVERY—a reliable, on-the-job service that eliminates inventory problems for you!

TUNE IN "INFORMATION PLEASE"—MONDAY EVENINGS, 9:30 E.W.T.—NBC

# A HOLD-DOWN *for Keeps*

Elastic Stop Nuts have been successfully used for hold-down bolts where security is vital. They give a positive fastening wherever there is vibration, impact, shock, stress change. Let us send an application engineer to discuss the Elastic Stop Nut way of avoiding nut failures that may be a costly maintenance item.


LOCKED ON THE BOLT BY THE ACTION OF THE GRIPPING RED COLLAR.
THE COLLAR IS ELASTIC, THE NUT CAN BE USED TIME AND TIME AGAIN.
MADE IN ALL SIZES AND TYPES—WITH THREADS TO FIT ANY STANDARD TYPES OF BOLTS.

This nut uses its head.

An Elastic Stop Nut carries its own insurance for a positive hold-down fastening — the elastic collar built into its head.

Here's how this device works:

The tough but resilient elastic collar forms itself to the individual bolt threads, grips them so tightly that the nut won't loosen up or back off even under the severest vibration.

Forget about cotter pins, lockwashers or any other auxiliaries when you use an Elastic Stop Nut. That means no chance of leaving off these extras as well as saving time in assembly and servicing.

Once on, an Elastic Stop Nut stays on. And it can be used over and over again without losing the grip of its headpiece.

Result: Economy in production and economy in use.

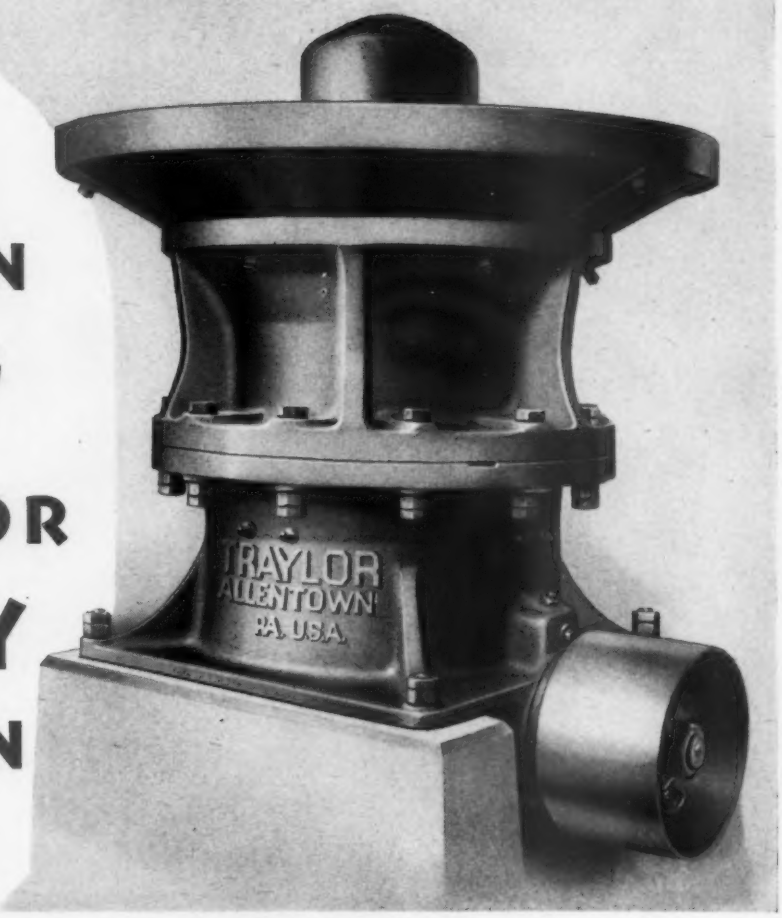
**ESNA**
TRADE MARK OF
ELASTIC STOP NUT CORPORATION OF AMERICA
Union, New Jersey
and Lincoln, Neb.
Sales Office—1060 Broad St., Newark 2, N.J.

**ELASTIC STOP NUTS**
*Lock fast to make things last*

# FOR BETTER REDUCTION CRUSHING

•

# THE TRAYLOR TYPE TY REDUCTION CRUSHER




## WE BUILD

Rotary Kilns
Rotary Coolers
Rotary Dryers
Rotary Slakers
Scrubbers
Evaporators
Jaw Crushers
Gyratory Crushers
Reduction-Crushers
Crushing Rolls
Grinding Mills
Ball Mills
Rod Mills
Tube Mills
Pug Mills
Wash Mills
Feeders
Rotary Screens
Elevators

It has the four functions that completely satisfy operators:—

1. Delivers the exact kind of product required, in the right capacity desired.
2. Is strong enough to stand up under its job.
3. Gets the ultimate value from wearing metal, is inexpensive to maintain otherwise, is economical in the use of power.
4. Is foolproof.

Hundreds of operators—in this and many foreign countries—working in all kinds of rock and ore, have ordered and used this crusher. Many have reordered. The evidence of satisfaction on the part of these operators is, we feel, conclusive proof that the Type TY has everything that crusher men want.

It is to your advantage to get acquainted with the TY Crusher.

Ask our representative to call or write for

**Bulletin No. 3112**

# TRAYLOR

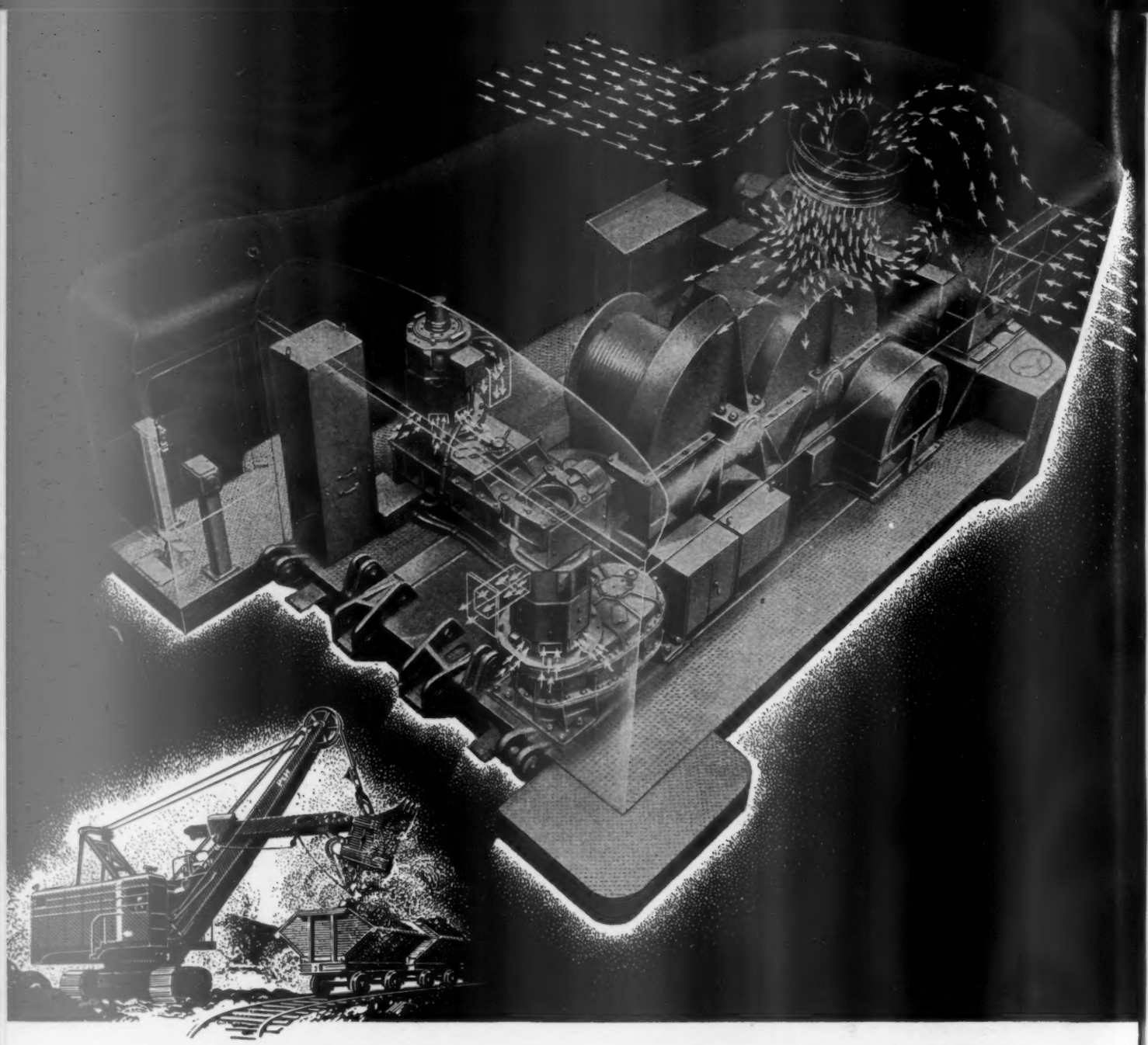
## ENGINEERING & MANUFACTURING CO.

MAIN OFFICE AND WORKS — ALLENTOWN, PENNA., U.S.A.

NEW YORK CITY, 3416 Empire State Bldg. | CHICAGO, 2051 One La Salle St. Bldg. | SALT LAKE CITY, 101 West Second South St. | LOS ANGELES, 919 Chester Williams Bldg. | SPOKANE, S. 2707 Rhyolite Rd.

B. C. EQUIPMENT CO., LTD.
551 Howe St., Vancouver, B. C.

Export Department—104 Pearl St., New York City. Foreign Sales Agencies: London, Lima, Rio de Janeiro, Buenos Aires, Santiago, Antofagasta, Oruro, Montevideo, La Paz



# How Saboteurs are FILTERED OUT!

It's a smart electric shovel that guards against such enemies as dust, dirt and grime. Their annual toll runs into mighty big figures — in reduced operating efficiency of electrical parts — in damage to equipment — in loss of productive time. On the new P&H Electric Shovels, a highly perfected cab ventilating system filters out these air-borne saboteurs. It keeps abrasives out of electrical machinery — keeps down shovel maintenance costs — steps up shovel working time.

Only clean air enters the P&H cab. Drawn in through filter banks by a centralized independent blower unit, the air is circulated to motors and generators. Once used, air is exhausted direct to the outside . . . not recirculated.

Here's an example of the care given to designing every detail of new P&H Electric Shovels in the interests of lower digging costs in open pits. Another example of P&H's 60 years of steady pioneering in applying electrical power to the movement of heavy loads.

P&H

ELECTRIC SHOVELS

4451 W. National Avenue
Milwaukee 14, Wisconsin

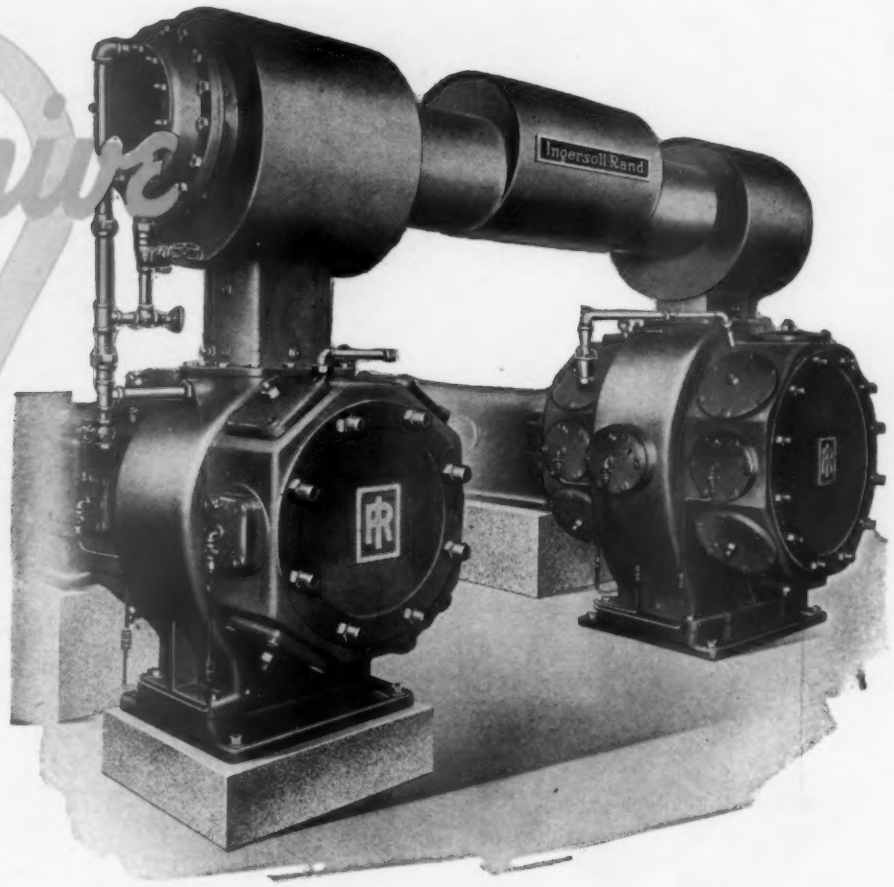
HARNISCHFEGER CORPORATION

EXCAVATORS · ELECTRIC CRANES · ARC WELDERS · HOISTS · WELDING ELECTRODES · MOTORS

THE GREATEST FORWARD STEP EVER MADE IN ELECTRIC SHOVEL DEVELOPMENT

Which drive?

- ELECTRIC
- STEAM
- OIL
- GAS
- BELT




# THERE'S ALWAYS ONE BEST DRIVE FOR YOUR COMPRESSOR

Perhaps it's a direct-connected electric-motor which best fits in your over-all power layout . . . a synchronous motor improves the power factor.

Or it may be steam, especially when the exhaust can be profitably used in process work or heating.

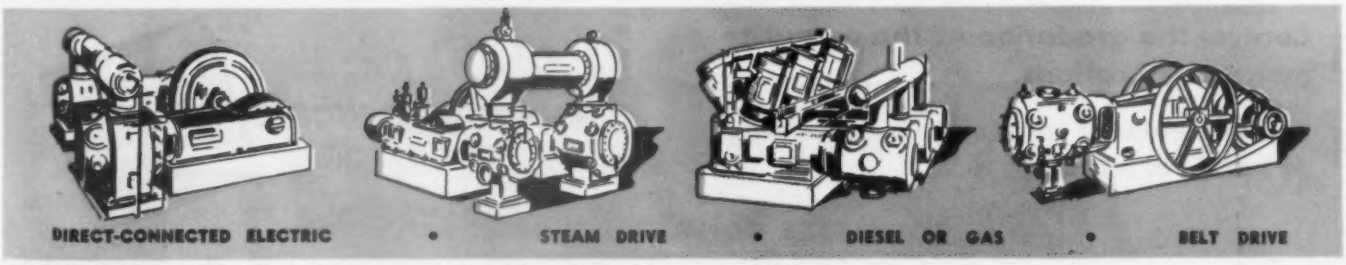
Then there are conditions best met by direct-connected oil- or gas-engine drive. In other cases, belt drive may be the correct solution.

But there is always *one best* choice, and there is no need to guess the answer. Ingersoll-Rand can furnish you compressors with any type of drive, and I-R engineers will be glad to study the problem with you, helping you select the compressor which best suits *your* conditions.

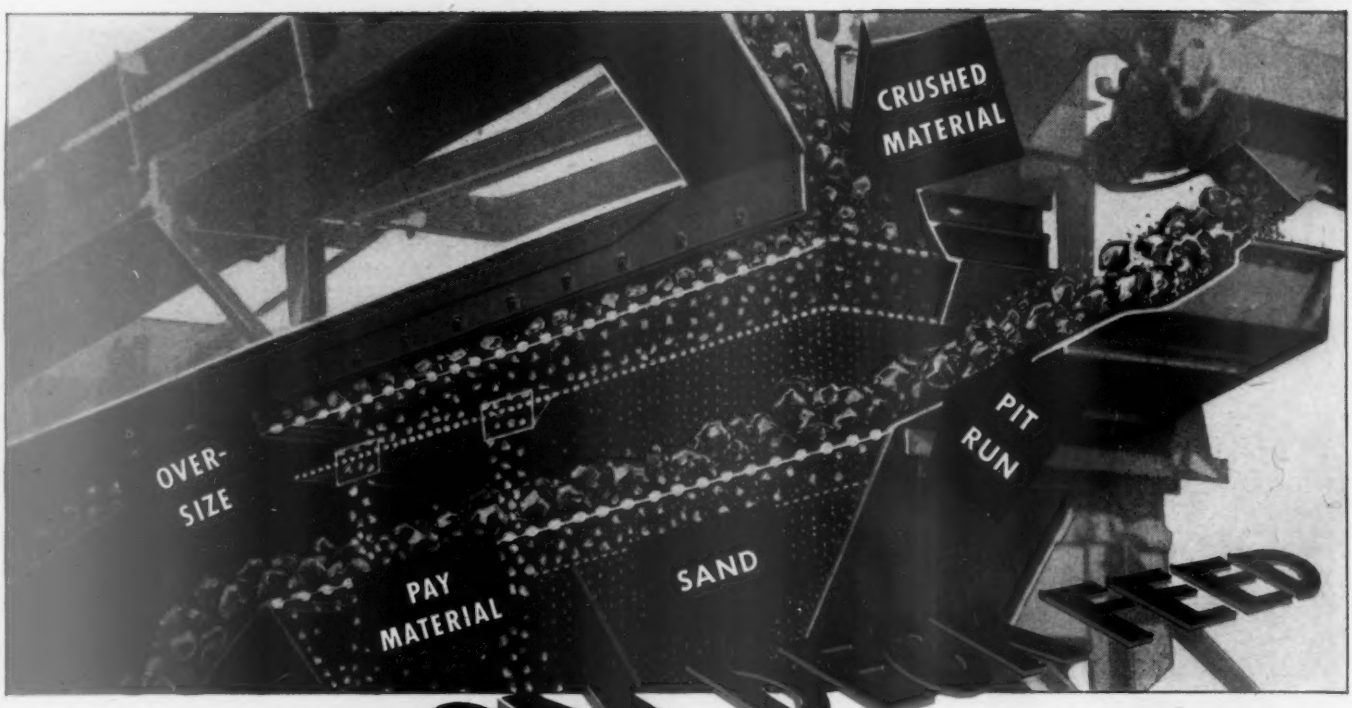
**Ingersoll-Rand**

11 BROADWAY, NEW YORK 4, N. Y.

1-442



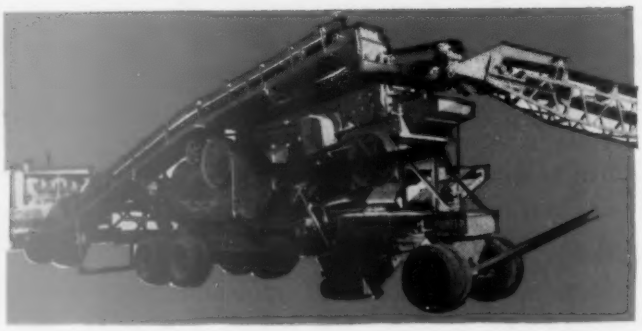
DIRECT-CONNECTED ELECTRIC • STEAM DRIVE • DIESEL OR GAS • BELT DRIVE




# BOTTOM DECK FEED

**EXCLUSIVE PIONEER FEATURE**

## *Doubles effective screen area-*



**YOU GET THESE ADVANTAGES:**

1. **Balance the work of the two crushers without changing screens.**
2. **Produce "stone chips" in the main screen without extra screen equipment.**
3. **Control the gradation of the output to meet specifications.**
4. **Reject sand and control the percentage of sand rejected.**

Duplex screening is Pioneer's radical innovation to handle the extra gradation to be done where two crushers are used in a gravel or quarry plant.

Pioneer makes one vibrator screen do the work of two. Pit material is screened on the bottom deck and the crushed material on the top deck. Both decks produce specification or pay material and "chips" can be separated. The screen shown is a 4′ x 12′ unit whose two decks have a combined total working area of 96 sq. ft.

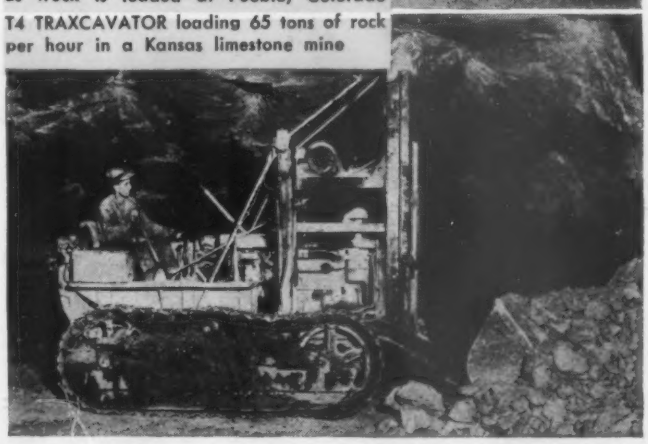
Only with this exclusive Pioneer bottom deck feed can you get all these advantages. Write or talk to Pioneer Plant users, or to Pioneer engineers and distributors for further information on how to handle large crushing capacity with a single screening unit.

**Pioneer**
ENGINEERING WORKS
Jaw Crushers · Roll Crushers · Screens · Conveyors · Feeders · Washers
ENGINEERS and MANUFACTURERS of QUARRY-GRAVEL and MINING MACHINERY
MINNEAPOLIS 13, MINN

# HANDLING COSTS $MASHED

TRAXCAVATOR loading rock in a California quarry

Mixing sand, small gravel and pea gravel as truck is loaded at Pueblo, Colorado



T4 TRAXCAVATOR loading 65 tons of rock per hour in a Kansas limestone mine

**YOU never saw anything like it! Material handling costs really take a good blasting when you have TRAXCAVATORS on the job. Production jumps to a new high; production costs tumble to new lows. These rugged, compact, powerful tractor excavators dig, load or carry rock, sand, gravel, earth and other materials with speed and profit. But that is not all the story on TRAXCAVATORS' versatility for they also maintain haulage roads, cleanup around the plant and in the pit, do draw-bar work and countless other husky tasks. See your TRACTION-"Caterpillar" dealer for the complete facts, or write direct to TRACKSON COMPANY, Dept. PQ-65, Milwaukee 1, Wisconsin.**

Courtesy of Pit and Quarry

# Primacord helps us increase efficiency in our operations

It takes fewer men, and less equipment to give even greater production when Primacord is on the job.

**Primacord** promotes *efficient planning* — places virtually no limit on the number of holes in a shot which may be fired simultaneously.

**Primacord** promotes *efficient loading* — permits varying loads to match rock strata, yet gives positive detonation to every cartridge in each deck load.

**Primacord** promotes *efficient rotation* — relieves pressures as front rows shoot a split second ahead of back rows, due to the definite sequence present in its almost instantaneous detonating wave.

**Primacord** promotes *efficient use of explosives* — secures full power due to its complete detonation of each cartridge.

**Primacord** promotes *efficient digging* — insures maximum fragmentation in the rock pile for utmost ease in handling.

Five checks on the score card that add up to 100% for Primacord Detonating Fuse.

P-7

## PRIMACORD-BICKFORD Detonating • Fuse •

MEMO TO ALL CONSTRUCTION SUPTS.
Haiss Service Costs upset all statistics. Better check it for our loading requirements
F. Wilt

*Simple Conversion Mountings.* Haiss simplified design of the Model 75 provides for interchange of wheels and creepers, in the field. Standard parts; no shop work.

Watch a Haiss in action—or, better still, get the *feel* of its ease of control as it "crowds" a stock pile or bank—and in no time at all you'll see why Haiss doesn't aim at price.

What Haiss does aim at—and builds—is a Loader that can absorb punishment... a Loader that will deliver more yards for more years with less maintenance and lower operating costs.

To insure this *bargain-on-the-job* Haiss makes full use of simple, functional design... takes the pick of the best alloy steels available...designs its own oil-bath-enclosed transmission—and powers the works with a motor rugged enough to "take it."

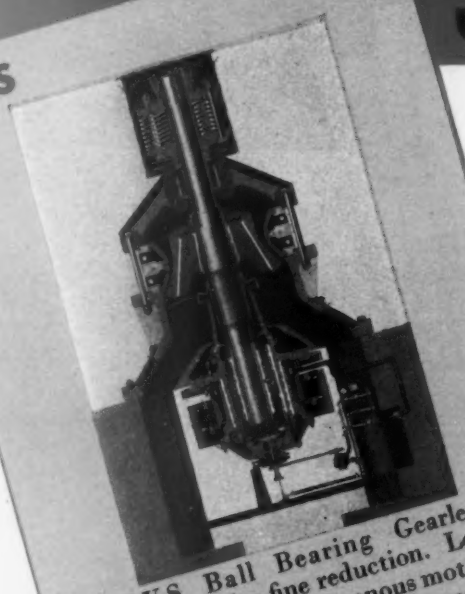
Haiss operating efficiency has been paying big dividends for Haiss owners for more than a half-century. Investigate now what a Haiss can do for you. Catalogs containing complete information will be sent promptly on request.

**GEORGE HAISS MFG. CO., INC.**
**142nd Street and Rider Avenue**
**New York 51, N.Y.**

**HAISS**

PORTABLE CONVEYORS ★ SNOW LOADERS ★ CLAMSHELL BUCKETS

# SURE WINNERS

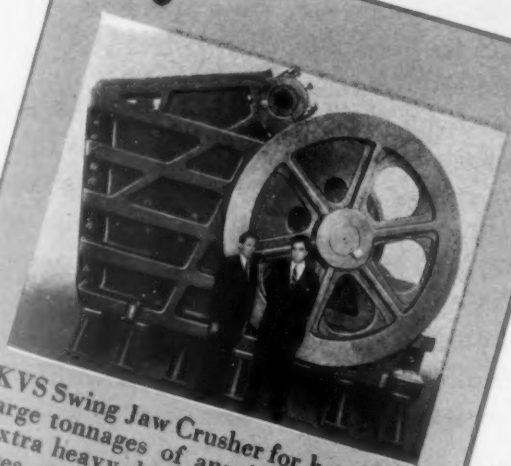



KVS Ball Bearing Gearless Crusher, for fine reduction. Low head type. Synchronous motor built-in pulley applies all power directly to crushing. Reversible concaves or grinding ring. Gives 100% more wear than any other crusher.

KVS

## *in* SIMPLICITY
## DURABILITY
## CAPACITY
## ECONOMY

# KENNEDY-
## PROCESSING




KVS Swing Jaw Crusher for handling large tonnages of any kind of rock. Extra heavy duty type. Available in sizes to suit all output or feed requirements. Split frame construction. Rocker shaft integral with swing jaw. Fly wheels heavy and unbalanced to give kinetic energy and help lift pitman on upward stroke. None of these crushers has ever failed to work.

KVS

"IT'S IN THE CARDS" for plants equipped by KENNEDY-VAN SAUN to show record capacity and economy, in spite of steadily increasing production demands and diminishing machine replacements.

The performance superiority of KVS units is based upon time-proved engineering design from the blueprint to the finished equipment.

This winning combination of good design and construction in KVS units insures profitable production of crushed stone and other rock materials. Every KVS unit is the "Ace" of its kind.

**KENNEDY-VAN SAUN MFG. & ENG. CORPORATION**

# for Producers

*of* Agstone
Gravel
Roadstone
Sand

KVS
KVS Gyratory Gearless Short Shaft Standard Crusher for primary reduction. Force-feed lubrication. Easy accessibility. Synchronous motor, built-in pulley. Shows large saving in power over geared type crusher.
KVS

# -VAN SAUN
## EQUIPMENT

KENNEDY Products include a complete line of crushing, pulverizing, sand washing, screening and burning machinery for the gravel, lime, cement and allied industries.

KVS
KVS Vibrating Screen, featuring low installation and maintenance costs. Two types available, in several sizes. Approximately 95% screening efficiency.
KVS

ARMY E NAVY

**WRITE FOR CATALOG**

"Representatives in all Principal Cities in the United States and Foreign Countries including Ejido 7-503, Mexico, D.F."

**2 PARK AVENUE, NEW YORK 16, N.Y.**
**FACTORY: DANVILLE, PA.**

# It pays to be a Bemis Multiwall paper bag Customer

EVEN though direct government purchases have taken a considerable part of our multiwall paper bag production this year, Bemis customers have not suffered . . . they have been supplied on the basis of past purchases, even in the face of the labor shortage and no increase in facilities.

Naturally, the demand for Multiwalls has been greater than the supply. Much as we regret inability to fill all orders, we have felt a responsibility to take care of our regular customers first. Fortunately, we've been able to do that—and right on schedule. If it's humanly possible, we'll keep on maintaining this service.

War or peace, we want our customers to feel that it pays to be Bemis customers.

NORTH
WEST EAST
SOUTH

A major reason we've been able to supply our Multiwall customers is the size and flexibility of our production facilities.

***Bemis Multiwall Plants at***

**PEORIA, ILL.**
**EAST PEPPERELL, MASS.**
**MOBILE, ALA.**
**SAN FRANCISCO, CALIF.**
**WILMINGTON, CALIF.**
**ST. HELENS, ORE.**

These plants not only give us large production, but also quick accessibility to all parts of the country.

**BEMIS BRO. BAG CO.** Baltimore • Boston • Brooklyn Buffalo • Charlotte • Chicago Denver • Detroit • Houston • Indianapolis • Kansas City • Los Angeles • Louisville Memphis • Minneapolis • New Orleans • New York City • Norfolk • Oklahoma City • Omaha St. Louis • Salina • Salt Lake City • Seattle • Wichita

# HOW *"Riding Comfort"* Saves Money in Material Handling

All heavy machines are more efficient and cost less to run when they are free from clutch troubles.

The Fawick Airflex Clutch gives them new smoothness, new freedom from vibration, by operating through a cushion of air and rubber, as effective as the cushion of air and rubber that gives the motor vehicle comfort and longer life.

With this clutch, no springs, arms or toggles are needed. There are no adjustments to make—no lubrication required. Maintenance costs are low. Even misalignment is corrected automatically.

By controlling inflation, clutch engagement is as light or as firm as the job demands. And there is complete nonmetallic safety for both drive and driven members.

Let our engineering department give you the benefit of their broad experience in the form of definite recommendations for your machines.

• •

**The Fawick Clutch provides air-cushion clutch action because it matches today's fine motor vehicle tires in quality of materials and excellence of workmanship—the result of the great technical advances made by America's Rubber Industry.**

**FAWICK AIRFLEX COMPANY, INC.**
**9919 Clinton Rd. • Cleveland 11, Ohio**
***In Canada,* Renold-Coventry Ltd., Montreal, Toronto, Vancouver**
***In Britain,* Crofts Engineers, Ltd., Bradford, England**

ARMY E NAVY

**FAWICK *Airflex* CLUTCH**

POWER CONTROLLED BY AIR

Two MANHATTAN Conveyor Belts in Tennessee.

Condor Suction Flexibles on Sump Pump.

Special MANHATTAN Belt on Box Car Loader gives exceptional service.

# ★ ★ From Pit to Loader ★ ★
# MANHATTAN RUBBER PRODUCTS help speed the mining of phosphate rock ★ ★ ★

In Tennessee and Florida phosphate mines, MANHATTAN Rubber Products are numerous. MANHATTAN Conveyor Belts for washers, hot phosphate handling and rock conveying; Condor Transmission and V-Belts for power drives; Condor Hydraulic Hose around log washers and stock piles; Condor Suction Flexibles on sump pumps, and special items such as box car loader belt, pump diaphragms, pump valves and many others.

A Florida plant has just reported unusual service from a MANHATTAN Elevator Belt — still in good condition after handling 500,000 tons.

Each of these MANHATTAN Rubber Products helps to reduce the ultimate cost of handling. Each shares in the savings garnered with mechanized equipment. Each gives long, trouble-free service to reduce replacement and maintenance costs.

Be ready for transition. Write for information now.

## THE MANHATTAN RUBBER MFG. DIVISION

OF RAYBESTOS-MANHATTAN, INC.

EXECUTIVE OFFICES PASSAIC, NEW JERSEY

KEEP AHEAD WITH MANHATTAN

Condor Hydraulic Hose, Mt. Pleasant, Tennessee.

# WHEN "Bag" MEETS "Bag"!

A "Bag" of Jap Prisoners in the Mariana Islands *tackles a load of American cement packed in*

# MULTIWALLS

# Case No. 4

*** DRENCHED AGGREGATE COATS PERFECTLY**

"**Drenched aggregate** was mixed with asphalt that had been treated with 0.5% **NOSTRIP Compound,** oil formula. For all the aggregates, (Quartzite, Diorite, Dolomite, Granite, Traprock, Gravel and Amphibolite), there was not the slightest bit of trouble to obtain a **perfect coating** of asphalt."

*Above is an excerpt from the report of the Testing Engineer of the Department of Highways of a Southern State. Send for copy of official report, giving name of State and results of all of the NOSTRIP tests made there.

*your first drum*

*is our best salesman!*

THE ALL-YEAR ROAD MATERIAL

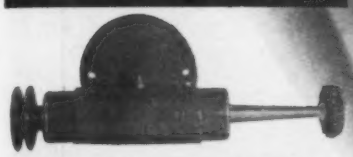
NOSTRIP

AN ADMIXTURE FOR TAR AND ASPHALT

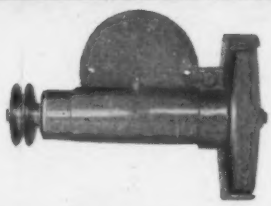
MAGUIRE INDUSTRIES, INCORPORATED • NOSTRIP DIVISION • 122 E. 42nd ST. NEW YORK, 17, N.Y.

# IT'S IN THE ARMY, TOO!

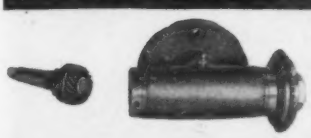
INTERNAL GRINDER



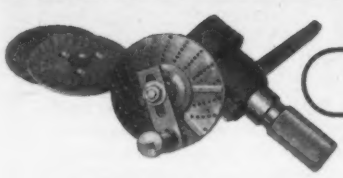
EXTERNAL GRINDER



THREAD MILLING

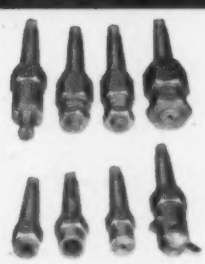


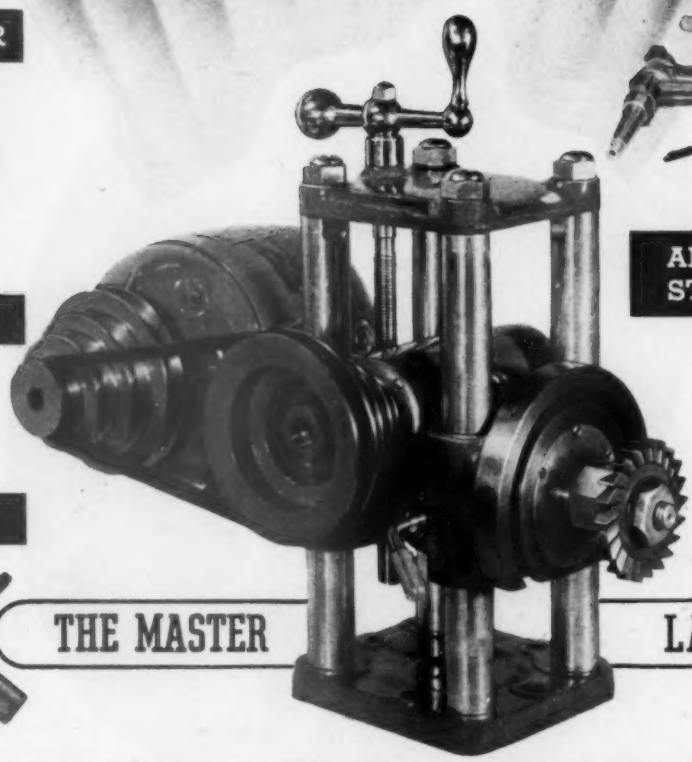
DIVIDING HEADS



INTERNAL KEYSEATING

ARBORS FOR ALL STANDARD CUTTERS





THE MASTER LATHE CONVERTER

## AN ESSENTIAL PRODUCTION TOOL IN TODAY'S MECHANIZED ARMY . .

The Master Lathe Converter with interchangeable heads is a complete metal working machine tool. Compact, rugged, portable, it performs PRECISION OPERATIONS in Milling, Grinding, Boring, Drilling, and Keyseating. It is designed for use on Engine Lathes, Planers, Shapers, Milling Machines, and Boring Mills.

Alert Engineers for Army Service Forces were quick to recognize its adaptability to their needs for maintenance and repair, and the Master Lathe Converter has been serving along the battle fronts and in war plants at home.

When they return to civilian life many of *Our Boys* will be using Master Machines in their own shops, plants, factories.

**Catalog No. 10 Includes Operation and Maintenance Manual—ASK FOR IT!**

the MASTER MANUFACTURING COMPANY
HUTCHINSON, KANSAS, U. S. A.

MM
LATHE CONVERTER

ADDRESS DEPT. PQ

# Now LAY·SET PREFORMED I.P.S.* is ALL GREEN!

● *The new* GREEN LUBE, *made to Hazard's own specifications, clings to the wires better, thereby affording increased protection. Wires wear longer; the entire rope gives longer service. That is why every strand in* LAY·SET *Preformed I. P. S. is packed to the point where every void is completely filled with this superior lubricant.*

Here is the ultimate in wire rope perfection. . . . Hazard LAY·SET Preformed made of Improved Plow Steel* . . . every strand of which is literally stuffed with our superior green lubricant . . . the best of all rope made still better by the more adhesive green lubricant which coats every wire.

ACCO

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HAZARD WIRE ROPE DIVISION
AMERICAN CHAIN & CABLE

TRADE MARK

*In Business for Your Safety*

# LONGER BEARING LIFE OVER LONGER PERIODS OF CONTINUOUS OPERATION...

When heavy loads must be carried from 12 to 24 hours a day, let Rollway Solid Cylindrical Roller Bearings do the job. They'll stand up longer, require less service attention. The reason is simple—*right-angle loading*. That means the loads are simplified, too. Broken down into their two simple components of pure radial and pure thrust—each carried on a separate bearing assembly at right angles to the roller axis! There are no oblique loads, no compound resultants; the unit pressures per roller are substantially reduced and the life expectancy of the bearing is relatively increased.

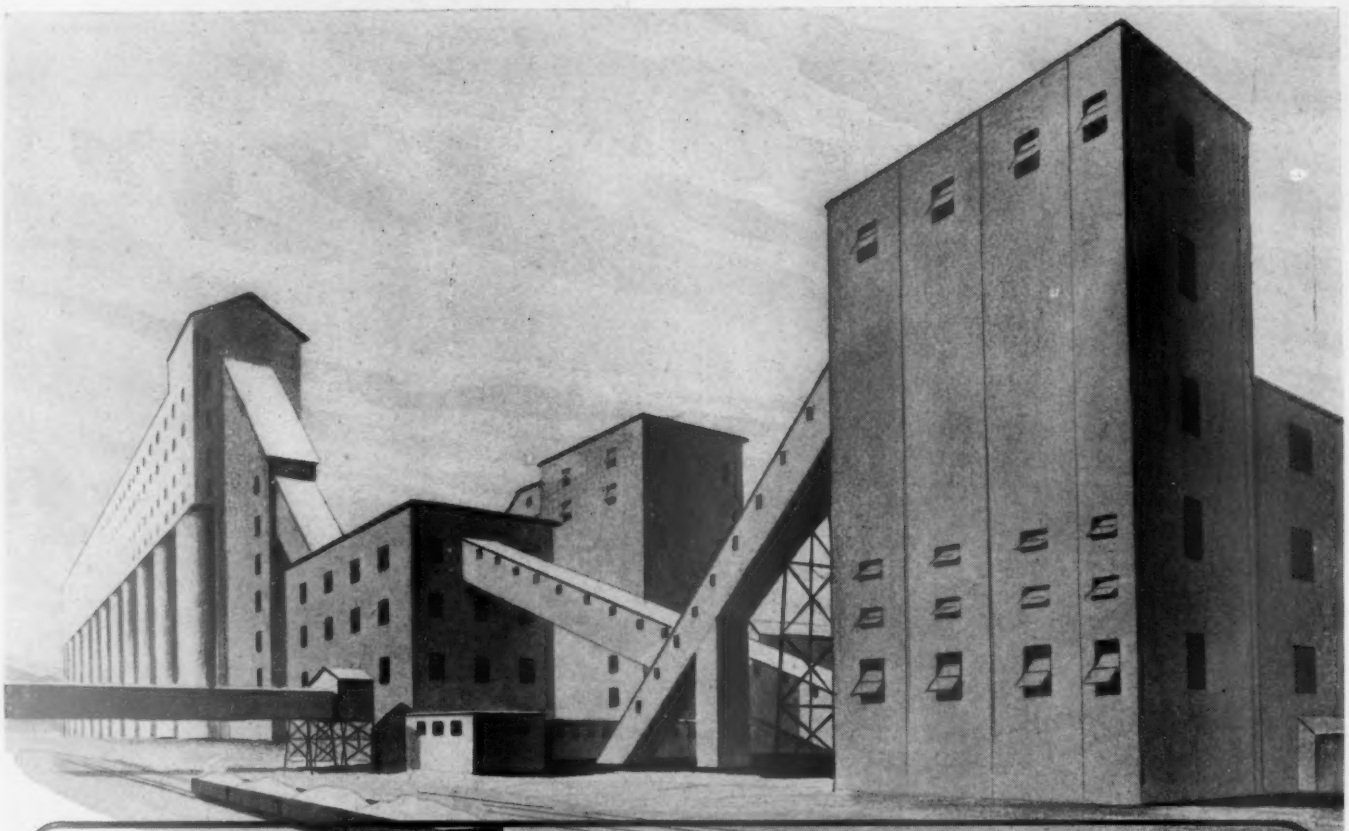
**Select Bearings Carefully**

Every field of general industry has its own bearing problem. No single type of bearing will prove adequate for every kind of industrial application. Let our specialists help you to select the proper bearing for your needs.

**ROLLWAY BEARING CO., INC.**
Syracuse, N. Y.
1908-1945

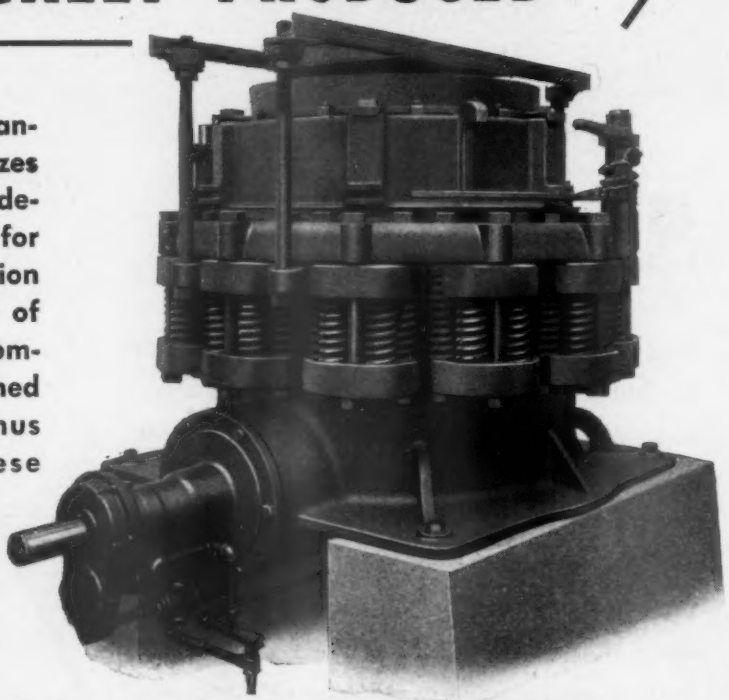
# ROLLWAY CYLINDRICAL ROLLER BEARINGS

SALES OFFICES: Philadelphia • Boston • Pittsburgh • Youngstown • Cleveland • Detroit • Chicago • St. Paul • Houston • Tulsa • Los Angeles



# MINUS HALF-INCH SIZES MORE ECONOMICALLY PRODUCED

If your present crushing equipment cannot economically produce those finer sizes for which there is an ever increasing demand, now is the time to make plans for modernizing your plant by the installation of Symons Cone Crushers. A survey of users of Symons Cones reveals that prominent and progressive producers of crushed materials invariably make their minus half inch sizes with Cones. These major producers appreciate the advantages of big capacity of fine product and low cost crushing which have won for Symons Cones a foremost place among crushing machinery.



Symons Cones are built in two types, the Standard for ordinary reduction crushing and the Short Head for extremely fine crushing. There is a size that will suit your operations. Write for further particulars on this outstanding reduction crusher.

**NORDBERG MFG. CO.**
MILWAUKEE 7, WISCONSIN
NEW YORK · LOS ANGELES · LONDON · TORONTO

NORDBERG MACHINERY

## SYMONS CONE CRUSHERS

# BOILED DOWN

## TO SIMPLIFY MOTOR SELECTION

● **This new booklet gives ratings, sizes, characteristics, dimensions, where-to-use data, *and prices* of General Electric a-c and d-c motors, 1/16 to 75 hp. Everything you need to know to select these sizes—all in 16 pages!**

Builders of TRI-CLAD Motors

Buy all the BONDS you can—*and keep all you buy*

*To Save Your Time Later Mail This Coupon Today—*

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Please send me a copy of your Condensed Motor Catalog (No. GEA-4281).

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**Company**.....

**Address**.....

**City**..... **State**.....

750-258-488

**GENERAL ELECTRIC**

# NEARLY 3 YEARS' SERVICE

## Where the Kiln is hottest . . .

## and years of service left!

Unretouched photographs of B&W nose ring castings installed in May 1942 and still on the job. Castings were not cleaned before photographing.

## B&W ALLOY CASTINGS

In the metal-torturing temperature of a busy cement kiln's firing end, these B&W Nose Ring Castings have been in service nearly three years. Castings previously installed on the same kiln gave up after about eight months, but these B&W Alloy Castings are still in good condition—with *more* years of punishment-absorbing service still in them!

That's evidence of how B&W Alloy Castings stand up under severe, high-temperature conditions; how they reduce costly, time-consuming repairs, and replacement shut-downs.

B&W Alloy Castings are available in analyses to meet almost any requirement: resistance to corrosion, oxidation, abrasion, or other adverse conditions encountered in equipment for rock products operations. They can be furnished in practically any shape and weight, for service temperatures up to 2000 F., under conditions requiring high creep strength, consistent with long-time stability.

These Alloy Castings are produced in B&W's modern foundry, which is equipped with electric induction furnaces, heat-treating facilities, electric welding apparatus and X-ray inspection equipment.

Experience gained in helping others to solve equipment problems with B&W alloy castings is available to you without obligation.

S-60

**BABCOCK & WILCOX**

THE BABCOCK & WILCOX COMPANY
85 LIBERTY STREET, NEW YORK 6, N.Y.

COARSEST to FINEST

# ...ANY ROCK PRODUCTS DUST CAN BE CONTROLLED WITH AAF EQUIPMENT

Shown below are six of the principal American Air Filter dust control units used by the rock products industry. Complete engineering data and literature are available on the entire AAF line. If you have a dust problem, consult with us—there's no obligation. Meanwhile, write for complete descriptive bulletins.

AAF

PROCESS DUST CONTROL

### TYPE D ROTO-CLONE

A revolutionary advancement in process dust control—combines fan and dust collector in a single compact unit. More efficient than standard exhauster and cyclone separator which it replaces. Simplifies dust control, eliminates extensive piping and reduces cost of installation. Wide variety of types and sizes. Write for Bulletin No. 272.

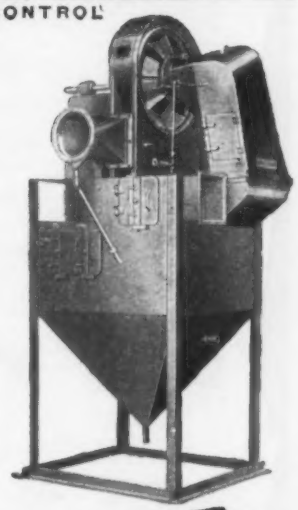
### TYPE F ROTO-CLONE

Similar in principle to the Type D but of steel plate construction. Widely applied to cleaning of stack gases from boilers or kilns, and exhaust from large rotary dryers or coolers. Also used for dedusting, air cleaning and other systems requiring dust removal from large air volumes. Write for Bulletin No. 273.

ATMOSPHERIC DUST CONTROL

### TYPE W ROTO-CLONE

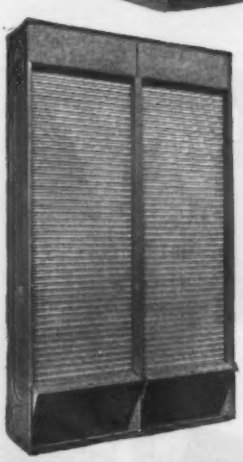
Combines the scrubbing effect of water sprays with principle of dynamic precipitation as employed in the Type D. Provides complete collection of finely divided materials, eliminating any possibility of a secondary dust problem. Collected material disposed of as sludge. Available in capacities up to 30,000 c.f.m. Write for Bulletin No. 274A.



### TYPE N ROTO-CLONE

A hydrostatic collector with induced water scrubber. No moving parts, spray nozzles or pumps. Especially suitable for the collection of cementitious dusts. All interior surfaces readily accessible and when required can be economically protected against corrosion. Write for Bulletin No. 277.

## AAF AIR CLEANERS FOR ENGINE AND COMPRESSOR PROTECTION



### MULTI-DUTY FILTER

May be connected to serve several engine or compressor units at one time. The Multi-Duty is also recognized as the finest automatic air filter for air conditioning service. Choice of several types of filter curtains to meet any existing dust condition. Furnished in any size or capacity. Send for Bulletin No. 241A.

### CYOIL OIL BATH CLEANER

Outstanding AAF air cleaner for engines and compressors. Takes care of extremely heavy dust concentration. Employs a new 4-way cleaning principle by which air is precleaned *before* entering conventional filter cell. The Cycoil and other AAF filters for similar services are described in Bulletin No. 130D.

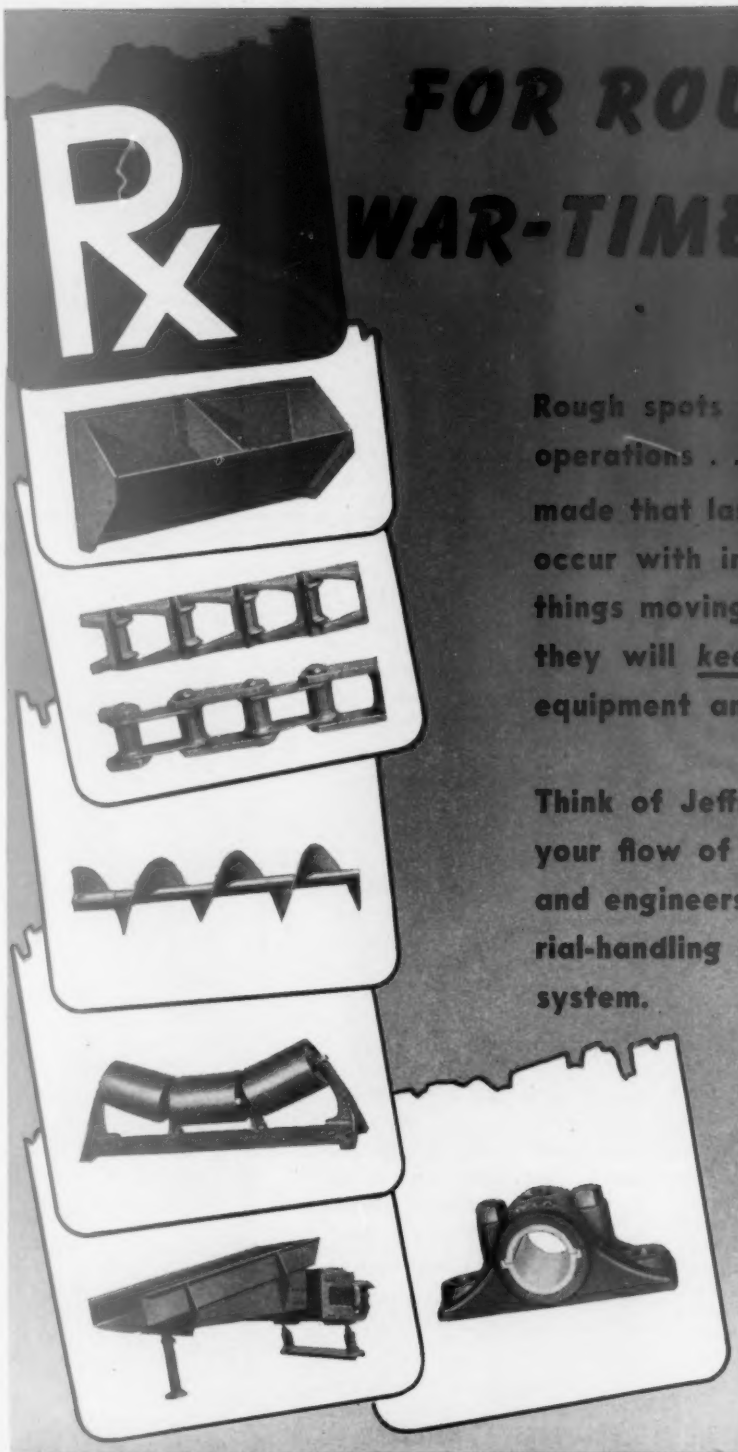
**AMERICAN AIR FILTER CO. INC.**

INCORPORATED

192 CENTRAL AVENUE, LOUISVILLE, KENTUCKY

IN CANADA: DARLING BROTHERS, LTD., MONTREAL, P. Q.

# FOR ROUGH SPOTS OF WAR-TIME PRODUCTION




Rough spots will always crop up in the flow of operations . . . no machine or part has yet been made that lasts forever. Nowadays, breakdowns occur with increasing frequency. You can start things moving again with greater assurance that they will *keep moving* by relying upon Jeffrey equipment and replacement parts.

Think of Jeffrey when a rough spot develops in your flow of operations. Jeffrey has technicians and engineers to help you coordinate your material-handling requirements into a smooth-running system.

## FOR HIGH PRODUCTIVITY . . . . . SPECIFY JEFFREY

CHAINS
CAR PULLERS
CONVEYORS
CRUSHERS
ELEVATORS
FEEDERS
GRINDERS
IDLERS (BELT)
PULVERIZERS
PORTABLES
SCREENS
TRANSMISSION MACHINERY
WAYTROLS — (ACCURATE GRAVIMETRIC FEEDING)

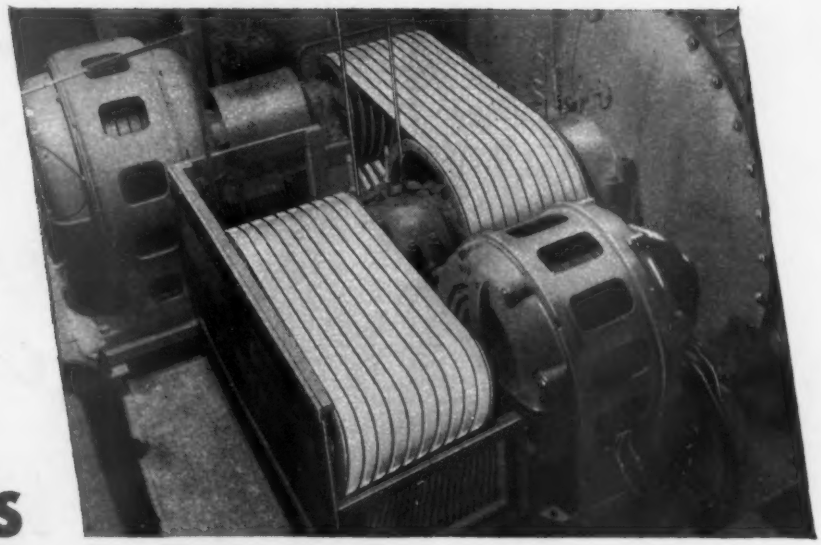
# THE JEFFREY MANUFACTURING COMPANY

ESTABLISHED 1877

917-99 North Fourth St., Columbus 16, Ohio

Baltimore 1 Buffalo 2 Cleveland 13 Harlan Milwaukee 11 Pittsburgh 22
Birmingham 3 Chicago 1 Denver 2 Houston 5 New York 7 St. Louis 3
Boston 16 Cincinnati 2 Detroit 13 Huntington 19 Philadelphia 3 Salt Lake City 1 Scranton 3

# Today-



## Your *Standard* GATES V-Belts

## —Made of *Synthetic* Rubber—

### are out-performing *ANY* V-Belts ever made of *NATURAL* Rubber!

No V-Belts built by *anyone* before the war could stand the service now daily delivered by Gates V-Belts on army tanks, tractors and self-propelled big guns. Gates developed these greatly superior V-Belts through intensified, specialized research—and Gates is building these belts entirely of *synthetic rubber.*

**This fact is now important to YOU**
**— — and here is the reason:**

● **Every improvement developed by Gates for these Army V-Belts has been added, day by day, to the quality of the standard Gates Vulco Ropes which have been delivered to you.**

In the case of many *other* products, as you know, you must wait until after the war to get the benefits of war-time improvements. But victory depends so directly upon production and production so directly upon V-Belts which drive the producing machines, that Gates has been able to give you *immediately,* in your Standard Gates Vulco Ropes, every V-Belt improvement which Gates specialized research has developed for use in the Army's motorized equipment.

*In addition,* where V-Belts of special construction are required, your Gates Rubber Engineer is in position to supply a Gates V-Belt that is precisely engineered to meet your special needs.

Whatever drive problem or V-Belt problem you may have, you need only to pick up your phone book and look under the heading "Gates Rubber." The Gate Rubber Engineer will bring right into your plant the full benefits of every advance in V-Belt construction and in drive operation that Gates specialized research has developed.

NOTE: GATES ALSO MAKES THESE SPECIAL BELTS TO MEET EXCEPTIONAL SERVICE NEEDS-

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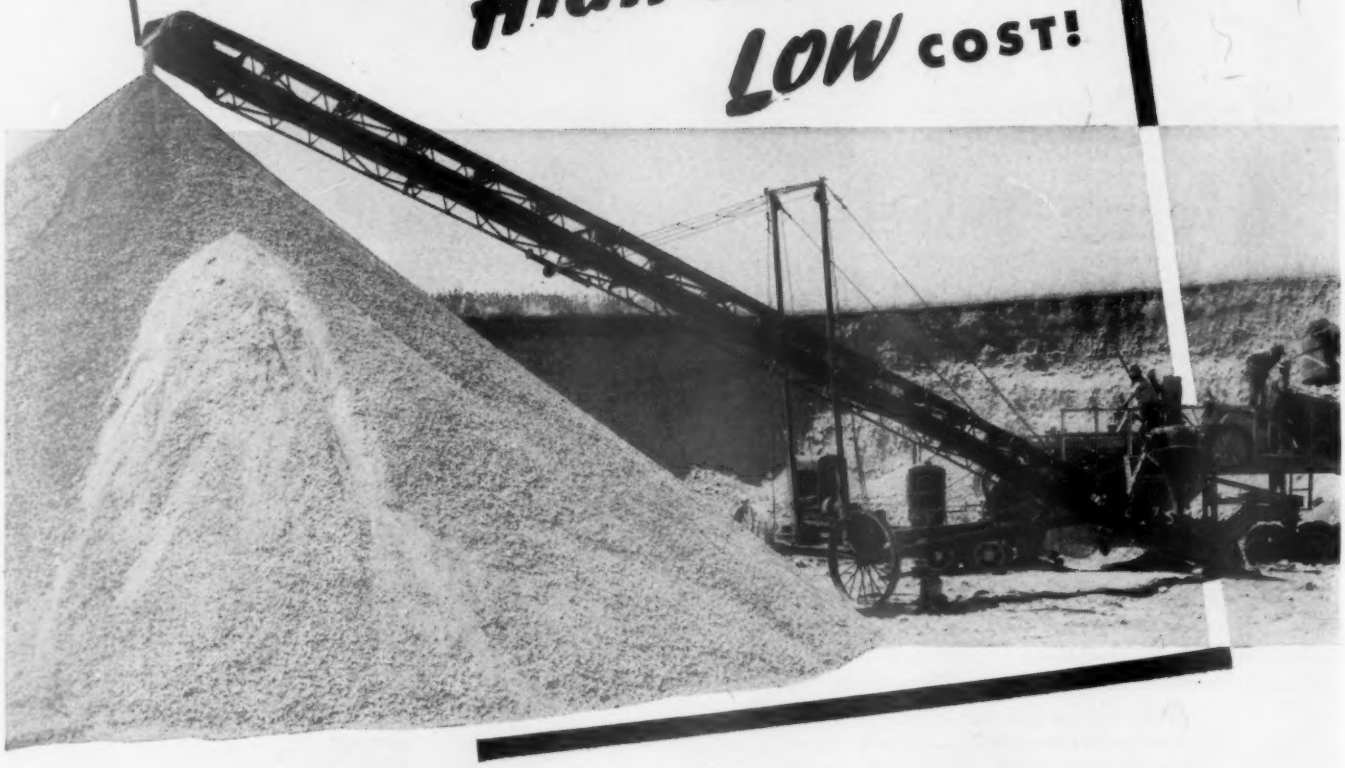
# HOW B-G CONVEYORS ACHIEVE *HIGH* CAPACITY AT *LOW* COST!



● You can stockpile material with less equipment, less horsepower, and less cost than by any other method when you use a Barber-Greene Portable Conveyor.

Capacity is high because material is kept on the move—*continuously*. B-G Conveyors handle the maximum output of crushers easily . . . help you make the most of limited space. Swiveling trucks permit storage in a large semicircle without disturbing the original installation.

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There are many types and sizes of Barber-Greene Conveyors, portable and permanent, for every material handling job. Barber-Greene Company, Aurora, Illinois.

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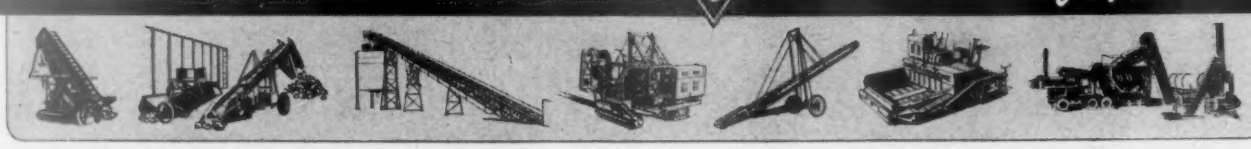
**Barber-Greene** *Constant Flow Equipment*



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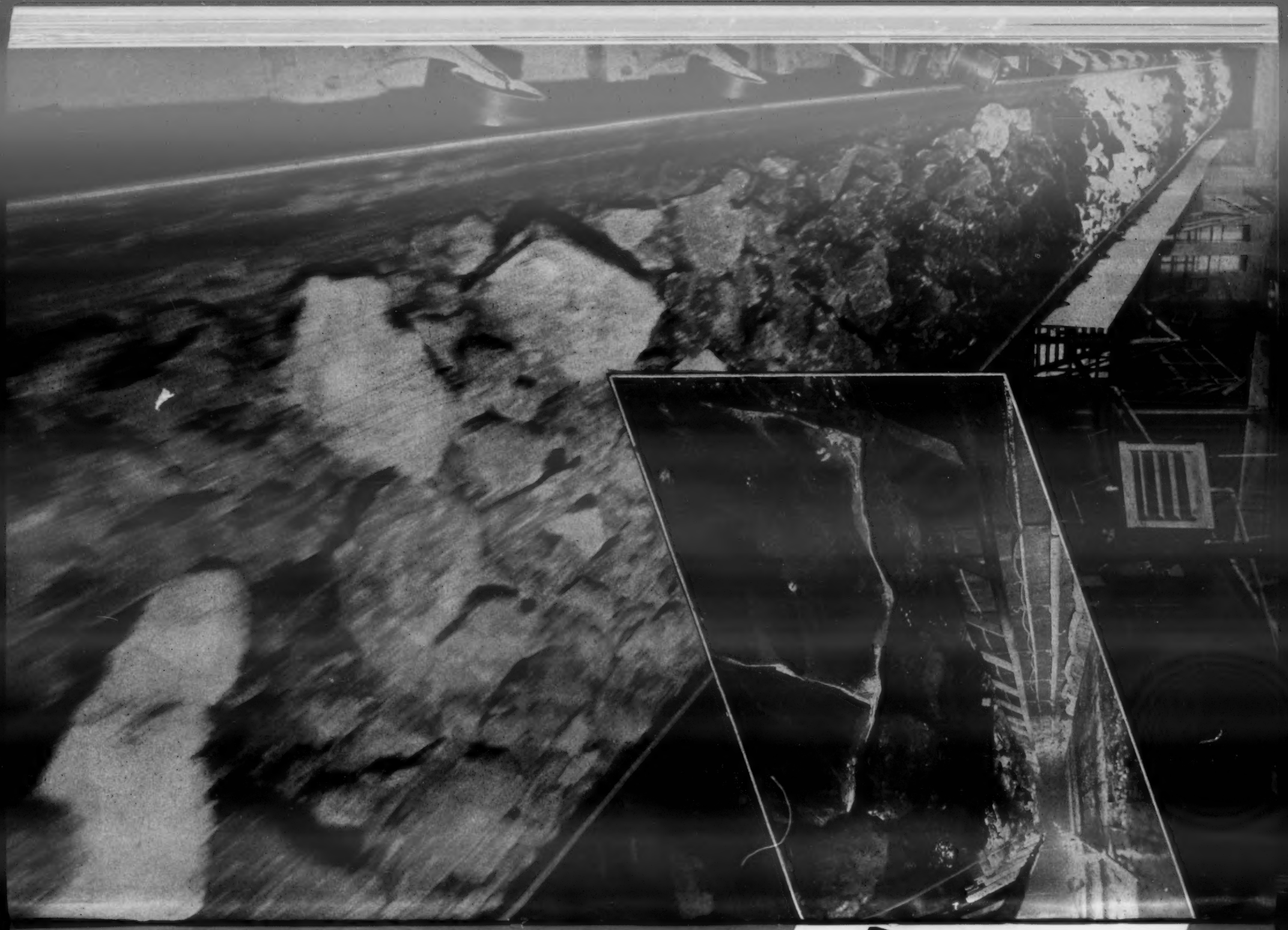

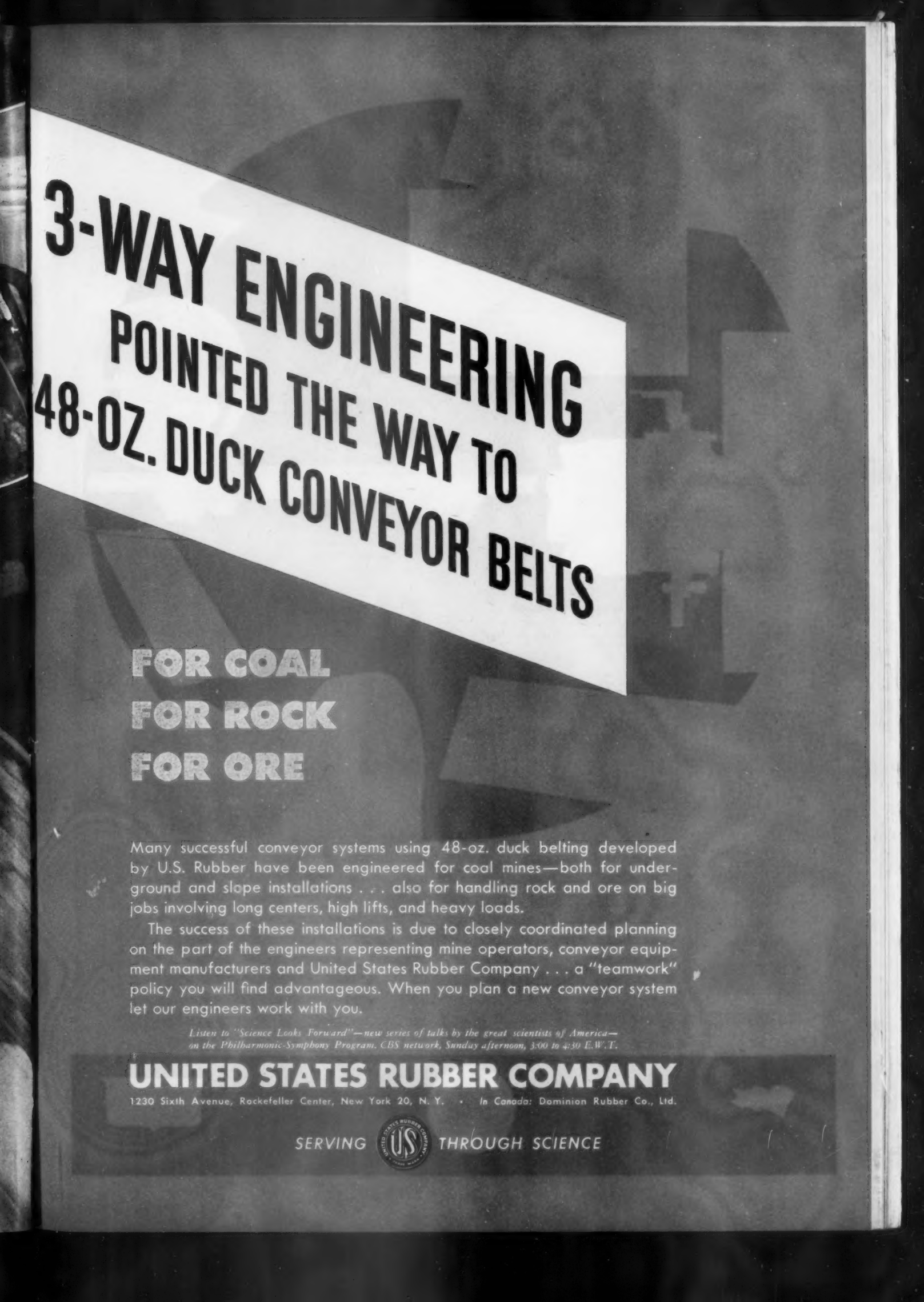


Many successful conveyor systems using 48-oz. duck belting developed by U.S. Rubber have been engineered for coal mines—both for underground and slope installations . . . also for handling rock and ore on big jobs involving long centers, high lifts, and heavy loads.

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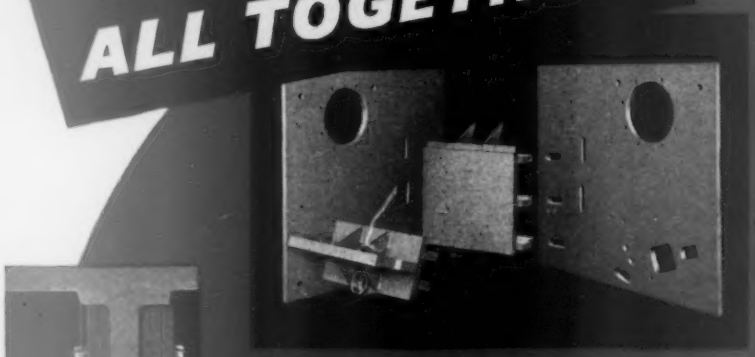

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**STEEL TOGGLE** is of uniform width, and proper and uniform strength.

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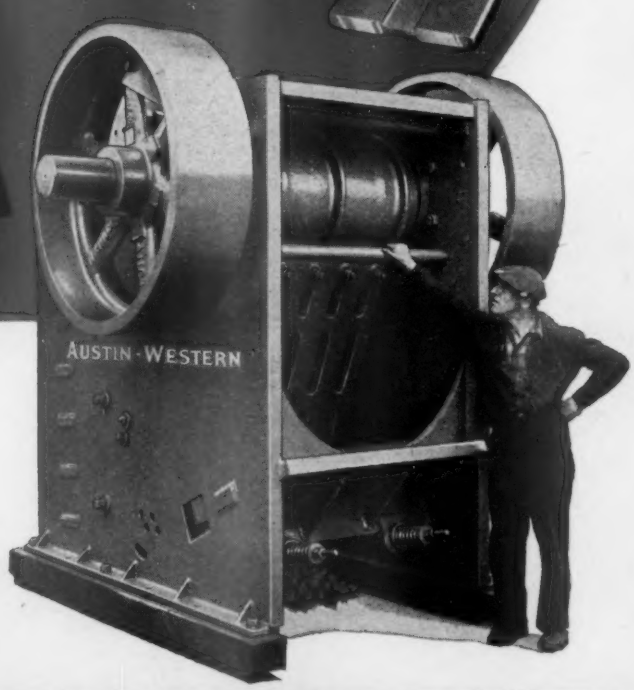


• Pictured on this page are but a few of the many exclusive features of design and construction which are responsible for the ability of *Austin-Western High-Speed Jaw Crushers* to exceed ordinary output standards by wide margins.

Bulletin 1960 tells the whole story. Your nearby A-W distributor will be glad to send you a copy.

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**Austin-Western**

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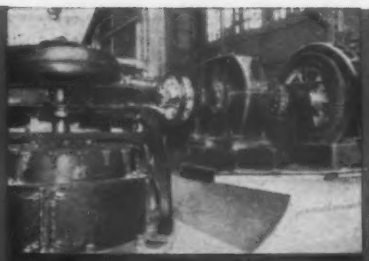
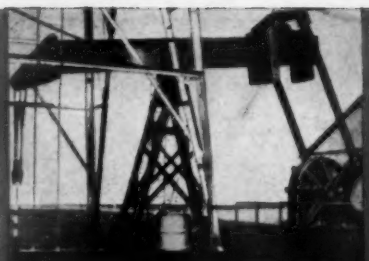


Bradley Hercules mill driven by Jones herringbone speed increaser from synchronous motor.



Oil field pumping unit using single type herringbone reducer driven by belt from gas engine.

# JONES Drives that are helping speed up wartime production

• Today every phase of war work calls for drives that will stay on the job. Jones Speed Reducers have been built for long, trouble-free service. And the records established by these speed reducers in 24 hour a day service show that they have the ruggedness and stamina for which all Jones Transmission Products are known.

The accompanying illustrations are presented to give a general idea of the services the Jones organization is prepared to render on drive problems where speed reducers are required.

If you would like to have a condensed picture of the Jones products and engineering services, that are being widely used by industry, just ask for Bulletin No. 80, "Jones Drives for Industry".

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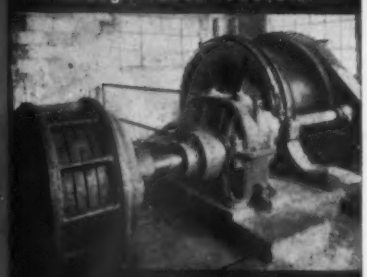
Hydraulic dredge which was equipped with Jones reducers as shown in view below.

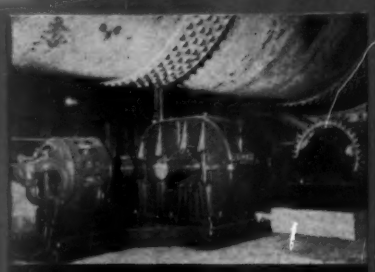
Drums and control mechanism of hydraulic dredge driven through Jones reducers.



A hoist for a coal mine driven by a Jones herringbone speed reducer.

Jones worm-helical speed reducer driving an agitator in a paper mill.

Centrifugal pump driven by a Jones speed increaser from belt drive to single cylinder gas engine.



A rotary kiln in a cement plant driven by Jones herringbone speed reducer.

Jones speed increaser driving a centrifugal pump from a Diesel engine.

# NOW'S THE TIME FOR *Your* BIG "MOP-UP"!

**RE-SOLICITATION** is the keynote for a victorious "mop up" in the Mighty 7th War Loan. Bond rallies plus continuous competition between departments help to keep Bond subscriptions on a quota-topping climb. Strategic poster displays . . . showings of "Mr. & Mrs. America," the Treasury film . . . distribution of the War Finance Booklet, "How To Get There," and the handy Bond-holding envelopes play an important part. But, above all else, arrange to have every employee asked *once more*—and personally urged *once more*—to meet his personal quota in the Mighty 7th!

The Payroll Savings Plan is the mainstay of every War Loan—meeting your plant quota is vital to the success of the 7th! Remember we have to make two drives in 1945 do the work of three last year. Put on an intensive "mop up" final to help mop up the Japs, cut the tentacles of inflation—and lay the foundation of security.

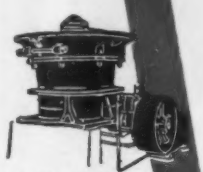
*The Treasury Department acknowledges with appreciation the publication of this message by*

## PIT and QUARRY

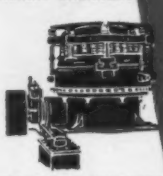
★ *This is an official U. S. Treasury advertisement prepared under the auspices of Treasury Department and War Advertising Council* ★

# WILL YOUR PLANT BE *ready* to meet *after-the-war* COMPETITION?

*Complete modern Telsmith plant ... producing both coarse and fine aggregates in several sizes.*

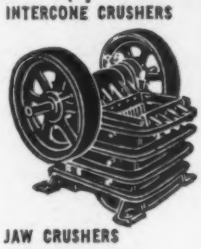


PRIMARY BREAKERS

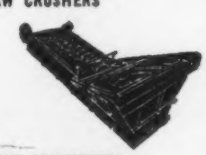


GYRASPHERE CRUSHERS

INTERCONE CRUSHERS

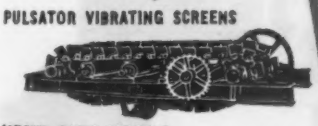


JAW CRUSHERS



SAND CLASSIFIERS

PULSATOR VIBRATING SCREENS



HEAVY DUTY FEEDERS

● AFTER VICTORY your plant will face a changed market. Peacetime construction contracts and customers will be different. Competition will be keener. Such changes call for plant planning *now!* Rearrangements and additional equipment will be needed. For example, more re-crushing, screening, washing capacity ... to produce the smaller sizes, in the quantities and quality your market demands. Modernize with Telsmith equipment. Give your plant this necessary product flexibility. Boost its output with Telsmith big capacity, free-from-grief, continuous, fast operation. Less power is required. Upkeep is lower. Telsmith equipment keeps your production costs down to a figure that insures you a good profit. Telsmith's 40 years of equipment-building complete-plant-engineering *know-how* is at your disposal. Write us in detail; or send for Bulletin E-15.

E-8

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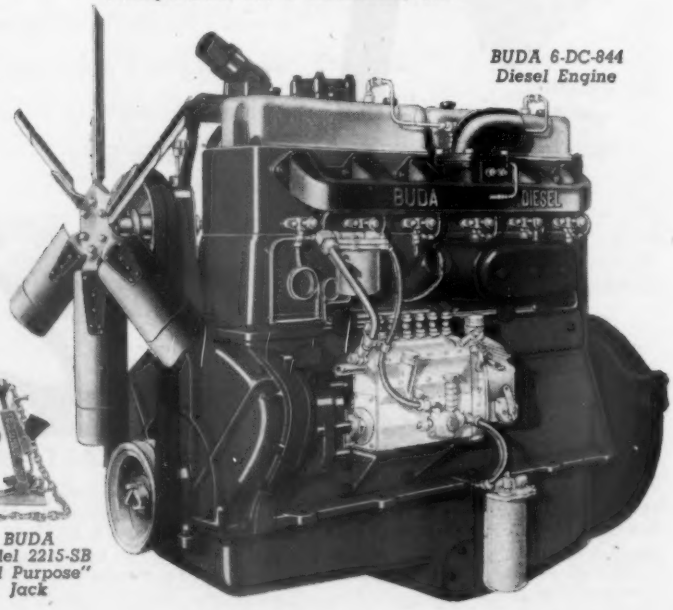


*BUDA 6-DC-844 Diesel Engine*

*BUDA Nozzle Tester*

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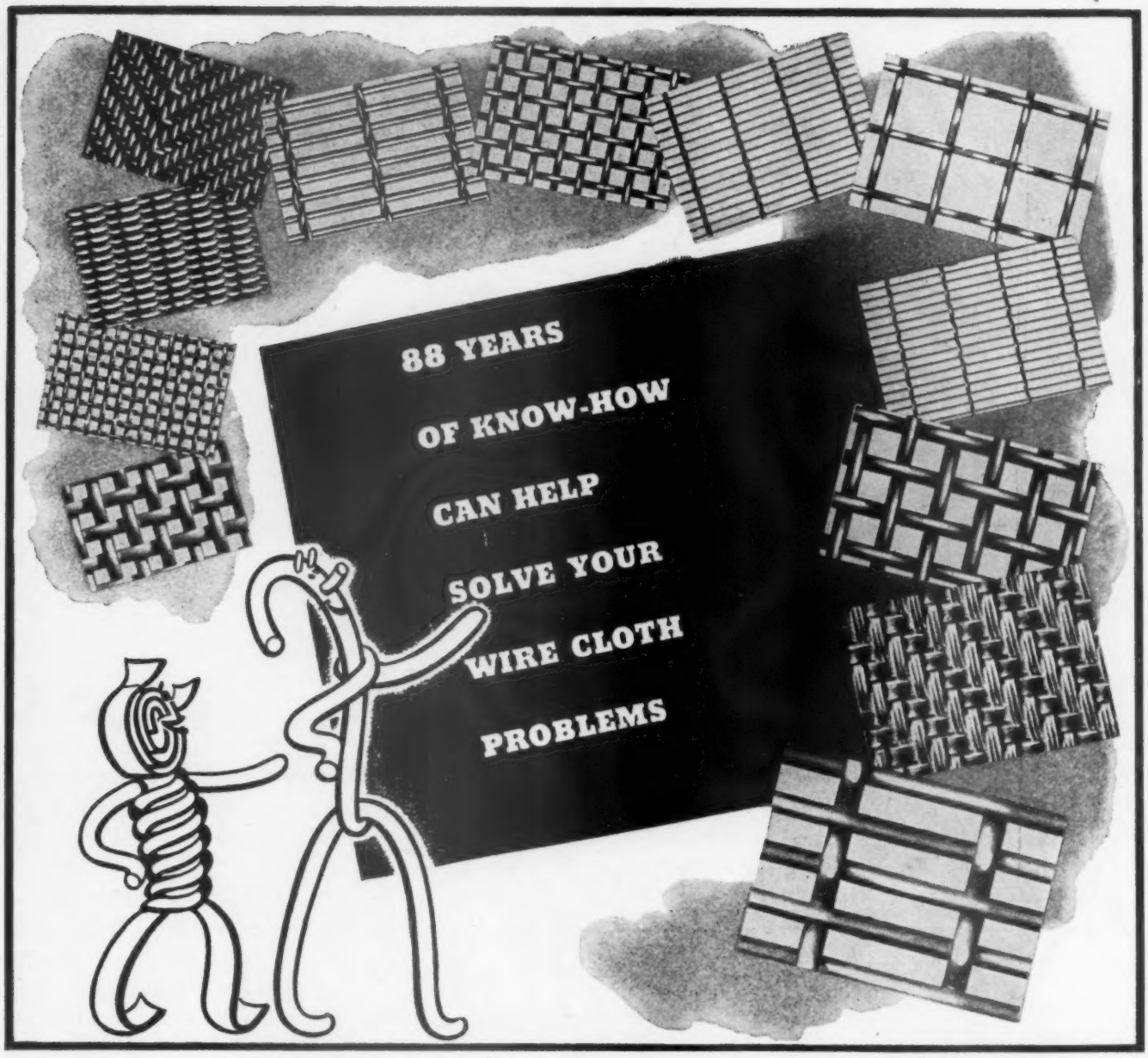
*BUDA Model 2215-SB "All Purpose" Jack*

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| No. 3 | 65 | 7000 | 9500 | 154 | 127 | 91 | 66 | 50 | 13 | 8 |
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| No. 5 | 65 | 6500 | 8500 | 177 | 147 | 104 | 77 | 58 | 14 | 9 |
| No. 6 | 65 | 6350 | 8000 | 196 | 160 | 111 | 82 | 61 | 15 | 10 |
| No. 7 | 65 | 5800 | 8000 | 210 | 173 | 118 | 88 | 67 | 15 | 10 |
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| No. 3-H | 65 | 9500 | 12000 | 154 | 127 | 91 | 66 | 50 | 13 | 8 |
| No. 4-H | 65 | 9000 | 11000 | 164 | 137 | 99 | 74 | 54 | 13 | 8 |
| No. 5-H | 65 | 8500 | 10500 | 177 | 147 | 104 | 77 | 58 | 14 | 9 |
| No. 6-H | 65 | 8500 | 10000 | 196 | 160 | 111 | 82 | 61 | 15 | 10 |
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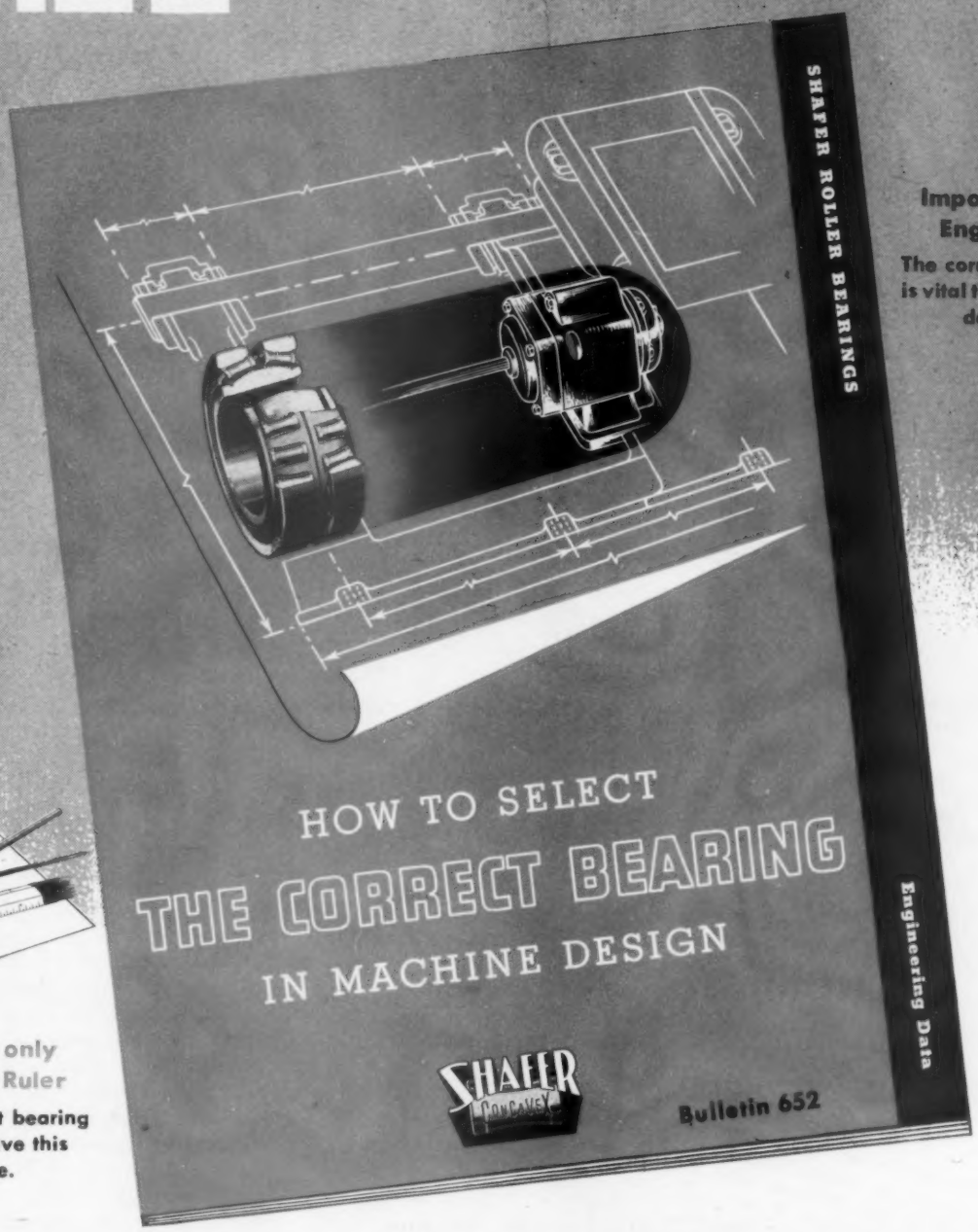


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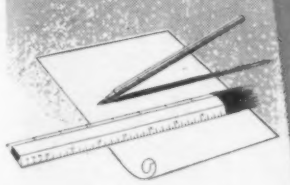
**The correct bearing is vital to successful design.**



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**to select correct bearing when you have this brochure.**

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**1434 WEST WASHINGTON STREET • CHICAGO 7, ILLINOIS**

PIT AND QUARRY

JUNE, 1945

Vol. 37 No 12

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CARVING airstrips out of jungles and dozens of equally difficult assignments have proved how expert the Seabees are in getting the most out of a bulldozer. Here, on an "easy" job, one of them builds a causeway to enable the crew of an LST to unload supplies.

On a Pacific island or here at home, getting the most out of bulldozers—and other types of construction equipment—depends not only on the operator's skill but also on effective lubrication. Maintenance-wise contractors everywhere know effective lubrication is always assured when they use Texaco.

*Texaco Ursa Oil X★★* for Diesels and heavy-duty gasoline engines, for example, assures better compression and combustion, greater fuel economy and more power because special additives give this heavy-duty oil the valuable properties of detergency and dispersion. Its detergency keeps piston rings free and engine parts clean. Its dispersive ability holds deposit-forming materials in suspension until drained. *Ursa Oil X★★* resists oxidation, protects alloy bearings and prevents scuffing of rings, pistons, cylinders.

For quieter-running, longer-lasting transmission and differential gears, use Texaco transmission and differential lubricants.

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TUNE IN THE TEXACO STAR THEATRE WITH JAMES MELTON EVERY SUNDAY NIGHT—CBS

# EDITORIAL

## *Control for Control's Sake*

NOW that V-E Day has passed into history people may be expected to become increasingly impatient with control. They will not readily believe that the restrictions which they have accepted in more than three years of war can not be lifted immediately, that the fact that there is still another and even more fanatical enemy to be conquered makes control on a wide front still an essential part of our national economy, a form of self-denial from which we can not yet escape. There is the fear that control may be continued for no better reason than that we have become accustomed to it, that extensive machinery has been established to exercise it, and that it must be given areas in which to function even after the need for it has passed.

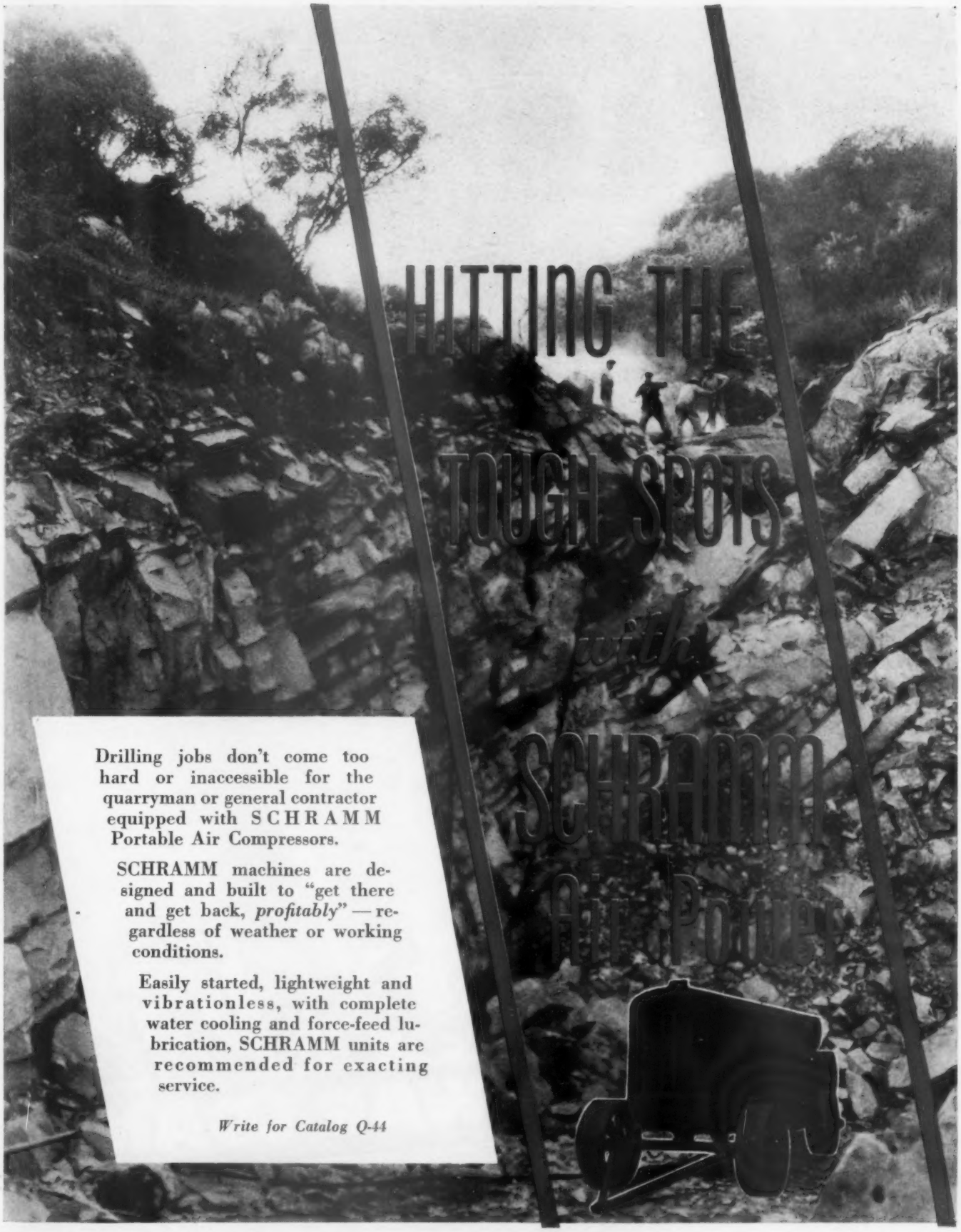
It should be obvious to most of us, however much we may have grumbled individually about the hardships involved in doing without, that the nation's economic state is vastly different from that in which the country found itself after the last war or even before the end of hostilities in 1918. Those of us who lived through World War I well remember, if not in complete detail at least in broad outlines, the extent to which inflation threw its weight upon the ordinary man as well as upon the opportunities for business expansion. The effects were calamitous in their impact on individuals and corporations and they were projected far into the future, contributing largely to—if they did not indeed cause—the collapse and despair that brought our economic structure to the very brink of destruction. Despite partial peace-time recovery and the lush years of war-born prosperity, the burdens of that period are still being carried by us all.

In World War II we have witnessed economic changes strange to many of us, changes that, through lack of intellectual preparation, we were poorly fitted to meet. Yet what we have beheld stands in striking contrast to what happened after the first world war. The prices of the necessities of living on the American standard have been held for the most part within closely circumscribed areas, although that standard has, of course, suffered from the imposition of rationing. Despite the mistakes that inevitably follow the introduction of any kind of governmental regulation of our economic life, many lessons were learned from our failure to act in time in the last war and, as a consequence, the whole problem of control was approached this time with a firmer understanding of its dangers if badly exercised and of its possibilities if undertaken boldly in the public interest. Economic control, in spite of weaknesses in administration, has justified itself as a necessary and workable means of preventing injustice while guaranteeing the production in sufficient quantities of materials and equipment essential to military success. In their less emotional moments most Americans would probably grant the validity of that observation.

There is still V-J Day to which we all look forward with hope and determination, and toward the coming of that hour we all contribute in varying degrees by work, patience, self-denial, sharing and sacrifice. We overlook, if we are well adjusted to the changes that surround us, the personal deprivations and the temporary, though necessary, abandonment of long-cherished economic and political principles. In the interest of justice, long-run gains and the relative tranquillity of peace we all surrender something of our individual sovereignty, our civil rights, for the attainment of the common goal. Yet those of us who know only a little of political history, realize that political power, even when democratically delegated and exercised, has a way of extending and perpetuating itself if for no other reason than that those who exercise it seek to make themselves secure and to widen the influence they exert. Many of them, through preoccupation with the procedures involved in control, become fanatical believers in the justice and inevitability of control and expert and zealous practitioners in the art of control for control's sake.

Many of our present economic controls have demonstrated their essential character, though the proof is largely of a negative type. Many appear at times to embrace too wide an area, to attempt too much, to infringe upon the rights of the individual merely for the sake of exhibiting and exploiting power. The latter tendency is one which Americans particularly, because of their heritage of personal freedom and belief that the state must be the servant and not the exploiter of the people, must watch with an eagle's eye. Yet we must be prepared to recognize the suitability of control where control works in the public interest and to support it in those areas with the same zeal which we should display in our fight against it when it encroaches upon that interest and threatens the general good.

IT is trite to say that we live in a changing world, that we either go forward with the progress of forward-looking ideas or fall hopelessly behind in our struggle to improve humanity's position in the world. Yet too many of us shrink from making the admission that moving forward is the principle of progress in the fields of economics and politics as well as in that of science. We must face the issue of public control in the public interest unflinchingly and objectively, remembering that few people like to be controlled and least of all those upon whose vested interests government control is most likely to press most heavily. We must learn to recognize the enemies of such control with the same sureness that makes us properly mistrustful of its fanatical advocates. We must learn to distinguish between controls that are in the general interest and those that favor special groups or are imposed and extended simply for control's sake.

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*A War Bond Message* ***Designed and Contributed by Buell Engineering Company, Inc., New York***

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DUST RECOVERY SYSTEMS

ROCK PRODUCT AND QUARRY

CHICAGO

JUNE, 1945

## Western Concern's Expansion Plans Include 5 New Plants

Pacific Coast Aggregates, Inc., which operates 15 gravel, sand and ready-mixed-concrete plants in California, is contemplating the building of five new plants after the war. Three will produce gravel, crushed gravel and sand, and the first of these to be built will have a capacity of approximately 600 tons per hour. The other two gravel plants will be built at intervals of about a year and the sand plants will be built during the same period.

## 1944 Gypsum Output Rises Cement Falls in California

Data on California 1944 production of cement and gypsum recently released by the state mineralogist showed a total of 14,599,752 barrels of cement and 558,488 net tons of gypsum, valued at $21,249,520 and $949,833, respectively. The 1944 output of cement represents a considerable decrease from the 1943 figure — 18,515,085 barrels. Gypsum production, on the other hand, gained over the 1943 output, which was 475,967 net tons.

## Missouri Union Workers Win Decision in Dispute

A regional War Labor Board recently handed down a ruling in the wage dispute involving A. F. of L. employees of the Ste. Genevieve Lime & Quarry Company, Peerless Lime Company and Mississippi Lime Company of Ste. Genevieve, Missouri. The decision orders that a general wage increase of 1½ cents per hour, with corresponding increases in piece rates, be granted; that one-week paid vacations be given after one year of service and two weeks after five years; and that a premium of 5 cents an hour be paid for work done between 11 p. m. and 7 a. m.

## Hamme Named President of Quality Lime Institute

Walter S. Hamme, agricultural sales manager for National Gypsum Company, has been elected president of the Quality Lime Institute, to succeed D. L. Shroyer of the H. E. Millard Lime Company, Annville, Pennsylvania.

Walter S. Hamme

With 20 years of experience in the lime industry behind him, Mr. Hamme is considered more than qualified for his new office. He has held positions with various lime concerns and since 1935 has been affiliated with the National Gypsum Company.

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At the fluorspar mill operated by Kramer Mines, Inc., of Denver, one of the newer industries of the Pikes Peak area, ore mined in the St. Peter's Dome region is processed at the rate of 100 tons daily. The output of fluorspar concentrate is from 40 to 50 tons per day.

## $7,000,000,000 Plans for Post-war Building in Blueprint Stage

Mounting evidence of post-war construction demand is seen in statistics on post-war projects released by the F. W. Dodge Corporation. Up to the end of March, 90,700 specific projects contemplated for post-war execution had been reported by the corporation's field staff, the estimated total cost being $14,815,613,000. These projects were reported for the territory east of the Rocky Mountains.

Of immediate significance is the fact that 30,217 of these projects, amounting to $7,231,295,000, have progressed to the design stage, representing more nearly the volume of work likely to be ready for bids within a reasonable time after wartime restrictions have been lifted. This volume of post-war planned work is greater than the volume of contracted work in the 37 Eastern states for any previous peace time year.

Commenting on these figures, Thomas S. Holden, president of F. W. Dodge Corporation, said: "Any delays in post-war construction revival will definitely be due to temporary material and manpower shortages rather than to any lack of demand or to dearth of planned projects. Our recorded figures include no deferred repair, maintenance and modernization projects, demand for which will be very heavy. They include only moderate amounts of such small new private building projects as are not usually planned much in advance of actual work. While our tabulation is definitely overweighted with public projects which may take some time for adequate financing, the $2,379,518,000 of new private projects in the design stage is considerably greater than the actual volume of private work in the 37 states contracted for in any of the prewar years, 1937, 1938 or 1939."

## Largest Edition of Pit and Quarry Handbook-Directory

Copies of the 1945 edition of PIT AND QUARRY HANDBOOK are now being distributed to nonmetallic-mineral producers. The new edition, which is the largest and most comprehensive of all the 38 annual editions that have been published, contains 894 pages and 879 illustrations in the text. Most of the book's pages are devoted to technical discussions of production methods and problems, including illustrations of hundreds of pieces of machinery used in processing and manufacturing the products of the nonmetallic-mineral field. The book includes also a thoroughly revised Directory of the industry—one section listing all the producing companies alphabetically by name, the other listing in geographical order all the plants operated by the companies listed in the alphabetical section. The technical sections, as well as the Directory, have been subjected to the closest scrutiny by many authorities and represent the most up-to-date treatment of the subject discussed. Inquiries regarding the new edition should be addressed to PIT AND QUARRY HANDBOOK, 538 South Clark Street, Chicago 5, Illinois.

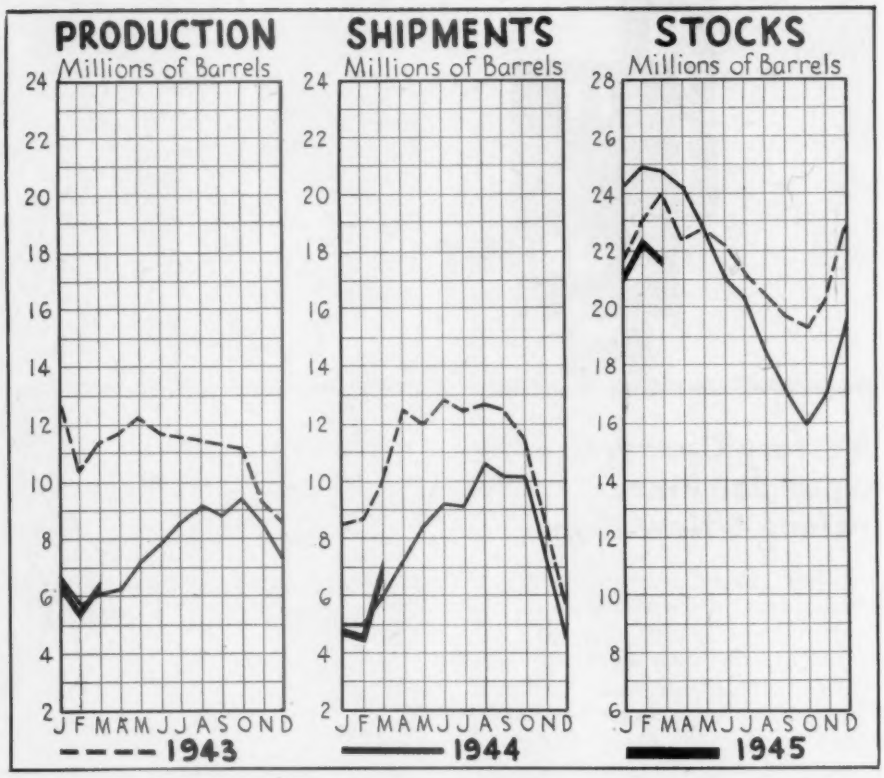
## Huntley Mines Plan New Treatment Plant

Huntley Mines have scheduled the erection of a treatment plant on the property of Pacific Pyrophyllite Division near Big Pine, California. Stripping and road work to open up the new deposit have been in progress for some time. Mining will be carried on by open pit methods and the mill will be built to handle both pyrophyllite and talc. W. H. Huntley heads Huntley Mines, which now produces talc. C. E. Demorest, Big Pine, is manager-secretary.

## $500,000 Damage Caused by Basic Magnesium Fire

Damage estimated at $500,000 was caused on the night of May 7 when a fire of undetermined origin swept Unit 3 of the Las Vegas, Nevada, plant of Basic Magnesium, Inc.

The huge plant, built and owned by the Defense Plant Corporation, was recently taken over by Bechtel-McCone Company, chemical manufacturers, after the halt in magnesium production for war uses.



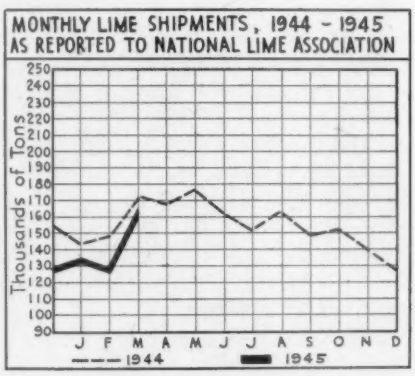

Output of 6,398,000 barrels of finished cement during March, 1945, reported to the Bureau of Mines, United States Department of the Interior, was 4 per cent. above that of March, 1944. The decline in the long term trend therefore was again halted. Production in March, 1945, did not meet demands and stocks decreased 583,000 barrels from the February, 1945, total. Shipments from mills during March, 1945, reached 6,988,000 barrels, an increase of 12 per cent. over that reported in March, 1944. Shipments in the first quarter of 1945 reached 16,435,000 barrels and represent an increase of 1 per cent. over that reported for the corresponding period of 1944. Mill stocks of finished cement at the end of March totaled 21,581,000 barrels, a decline of 14 per cent. from the stocks of the corresponding month of 1944. The March total represents not only a decline from the previous months' total but also a continued close adherence to the trend of the 1935-39 average.

## Government Defends Claim of Indians Against Firm

In the federal government's $20,000 damage suit against the Concho Sand & Gravel Company, Oklahoma City, the issue arose as to whether limestone taken from lands near Pawhuska, on which the Osage Indians still own tribally all sub-soil minerals, belonged to the tribe or to William P. Higgins, who had bought the land.

Counsel for the gravel company contended that limestone is not a mineral and that "limestone in place has no value." Assistant U. S. Attorney Robert E. Shelton told the court that the company in 1931 took 20,925 cubic yards of limestone off the Higgins land, "without the knowledge or consent of the government or the Osage tribe." He contended that the government and the Indians were entitled to the market value of the limestone, which was $1 per cubic yard.

In taking the case under advisement, Judge S. S. Chandler directed the attorneys to submit briefs on the issue.




According to data collected by the National Lime Association, 56 companies in March, 1945, shipped 161,881 tons of lime (99,037 quicklime; 62,844 hydrate). Reporting companies represent 43.8 per cent. of the association members' total capacity of record. Based on PIT AND QUARRY'S estimates for the remainder of the industry, the total shipments for the month by all plants were approximately 400,000 tons. Shipments of lime by users for March, 1945, were:

| Use | Quicklime (tons) | Hydrate (tons) |
|---|---|---|
| Agricultural | 4,345 | 23,169 |
| Building | 7,657 | 14,828 |
| Chemical | 87,035 | 24,847 |
| Total | 99,037 | 62,844 |

## Cooperative Effort Results in New Film on Cement Industry

A cooperative project of the Universal Atlas Cement Company and the United States Bureau of Mines was the production of the motion picture *From Mountain to Cement Sack,* which shows the process through which the raw material passes to attain its final stage. Included are shots of the extraction and baking of the material, as well as sequences showing the addition of gypsum and other elements needed for various types of products. The 16 mm. sound film may be borrowed from Louis F. Perry, Bureau of Mines Experiment Station, 4800 Forbes Street, Pittsburgh, Pennsylvania.

## Metallurgical Limestone Ordered by Kaiser Co.

The Henry J. Kaiser Company, Inc., Iron & Steel Division, recently contracted with the Riverside Cement Company, Los Angeles, for the delivery of 12 carloads daily of metallurgical limestone to the Kaiser steel plant at Fontana, California.

The stone is being quarried in the Oro Grande quarry which also serves Riverside's Oro Grande cement plant. After having been idle for several years the Oro Grande plant was rehabilitated shortly after Pearl Harbor to produce clinker, which was shipped to Riverside's Crestmore plant for final grinding.

## Chilean Firm Buys Kilns from Lime & Hydrate Co.

The Lime & Hydrate Plants Company, York, Pennsylvania, is at present engaged in building a hydrate plant for Gildemeister & Company of Santiago, Chile, and has recently shipped two shaft kilns to the South American firm. The Pennsylvania concern is also constructing lime machinery for the Russian government, for milk-of-lime, lime putty and hydrate lime preparation.

## Patents Seized by U. S. Available to Citizens

Publication of printed abstracts or short descriptions of about 45,000 United States patents and patent applications, seized from enemy aliens and nationals of occupied countries and now available for license to American citizens, has been announced recently by Alien Property Custodian James E. Markham. These abstracts are divided into two groups, one chemical and the other mechanical-electrical. Many of the inventions are of direct interest to the glass, ceramic and cement industries.

## Nodulite Plant Offered for Sale by Government

Listed among industrial facilities by the Surplus War Property Division of the Defense Plant Corporation is the nodulite aggregate plant at Ellenton, Florida. Eight buildings on approximately 333 acres of land comprise the plant, which is completely equipped with machinery and railroad facilities.

Almost the entire tract can be utilized to obtain the Fuller's earth necessary to operate the plant. A complete story of this plant was published in PIT AND QUARRY for October, 1944.

## Charter Granted to Mine Silica Rock, Sand, Clay

A charter has been issued by the Virginia State Corporation Commission to the Shenandoah Brick & Tile Corporation, Winchester, to mine and quarry silica rock and sand, clay, shale and other materials used in the manufacturing of brick, tile and similar products.

The firm will engage in the mining and manufacturing business and will have a maximum capital of $100,000.

The importance of one phase of the Army's training program in teaching its men the mysteries and fine points of operating and maintaining crushing equipment for overseas activities is illustrated by this photograph showing Army engineers at work in a quarry somewhere in France.

## Limestone Division of N.C.S.A. Elects Officers at Cincinnati

At the meeting of the Agricultural Limestone Division of the National Crushed Stone Association held in Cincinnati on April 5 and 6 (see story in May issue) the following officers and directors were elected:

Chairman, Howard M. Thomas, Fort Scott Hydraulic Cement Company, Ft. Scott, Kans.; managing director, Henry A. Huschke, Washington, D. C.; secretary, J. R. Boyd, Washington, D. C.

Executive Committee: Howard M. Thomas, *Chairman,* Fort Scott Hydraulic Cement Co., Ft. Scott, Kans.; Paul I. Detwiler, New Enterprise Stone & Lime Company, New Enterprise, Pa.; E. E. Haapala, Zumbrota, Minn.; P. E. Heim, Carbon Limestone Co., Youngstown, Ohio; R. P. Immel, American Limestone Co., Knoxville, Tenn.; E. J. Krause, Columbia Quarry Co., St. Louis, Mo.; Norbert Neuheisel, Neuheisel Lime Works, Eau Claire, Wis.

Board of Directors: Howard M. Thomas, *Chairman,* Fort Scott Hydraulic Cement Co., Ft. Scott, Kans.; Paul I. Detwiler, New Enterprise Stone & Lime Co., New Enterprise, Pa.; Earl L. Dingle, Harry T. Campbell Sons Co., Inc., Towson, Md.; John Durrell, Hoosac Valley Lime Co., North Adams, Mass.; James Eells, Cleveland, Ohio; Otho M. Graves, General Crushed Stone Co., Easton, Pa.; E. E. Haapala, Zumbrota, Minn.; P. E. Heim, Carbon Limestone Co., Youngstown, Ohio; L. W. Hayes, Hayes Construction Co., Kansas City, Mo.; E. L. Heckathorn, Stuntz and Yeoman Lime Quarry, Delphi, Ind.; R. P. Immel, American Limestone Company, Knoxville, Tenn.; E. J. Krause, Columbia Quarry Co., St. Louis, Mo.; S. J. Marks, Material Service Corporation, Chicago, Ill.; A. W. McThenia, Acme Limestone Co., Fort Spring, W. Va.; Verne C. Morgan, Kentucky Stone Co., Louisville, Ky.; S. P. Moore, Concrete Materials and Construction Co., Cedar Rapids, Iowa; Robert Murphy, Black Creek Stone Co., Black Creek, Wis.; Paul M. Nauman, Dubuque Stone Products Co., Dubuque, Iowa; Norbert Neuheisel, Neuheisel Lime Works, Eau Claire, Wis.; W. M. Palmer, Dixie Lime Products Co., Ocala, Florida; W. T. Ragland, Superior Stone Co., Raleigh, N. C.; A. B. Rodes, Franklin Limestone Co., Nashville, Tenn.; E. V. Scott, Southwest Stone Co., Dallas, Texas; C. M. Sims, Campbell Limestone Co., Gaffney, S. C.; O. M. Stull, Liberty Limestone Corp., Buchanan, Va.; R. T. Willingham, Willingham-Little Stone Co., Atlanta, Ga.

Two men who were injured on April 23 in a boiler explosion at the Hockman and Walker Sand & Gravel Company at New Harmony, Indiana, died later in Evansville. The cause of the blast is unknown.

**Your Country is still at war—are you?**

# Rock Products, Ready-Mix Firms Form 2 Associations in California

Two new local associations, formed to coördinate the efforts of producers in solving the problems common to their industries, have come into being at Los Angeles through the incorporation of the Southern California Rock Products Association and the Southern California Ready Mixed Concrete Association.

The new organizations have been set up along the lines of the national associations and offices have been established at Room 835 of the H. W. Hellman Building, Fourth and Spring Streets, Los Angeles.

The officers of the Southern California Rock Products Association are: Robert Mitchell (Consolidated Rock Products Company), president; Harry E. Bender (Azusa Rock & Sand Company), vice-president; Maurice F. Joyce (Arrow Rock Company), treasurer.

P. C. Graham

Paul C. Graham (Graham Brothers, Inc.) heads the Southern California Ready Mixed Concrete Association; George L. Eastman (Security Materials Company) is vice-president; and L. Glenn Switzer (Transit Mixed Concrete Company) is treasurer.

H. G. Feraud is executive secretary of both groups and makes his headquarters at the association offices. He has been identified with the pit-and-quarry industries of the Los Angeles area in various capacities since 1907.

Regular monthly meetings are provided for and the annual meeting of the rock-products group is set for the last Tuesday in March; the yearly gathering for the ready-mix organization is slated for the first Tuesday in April.

Problems having to do with labor relations, taxation, legislation, government regulations, and research are expected to occupy the attention of the new organizations in the immediate future.

A research program, to be carried out jointly by the two groups, is to be directed by Harry D. Jumper (Consolidated Rock Products Company) as chairman of the Technical problems committee. In this, as in other organizational functions, the two groups expect to work in close harmony with the national associations in Washington which have been of great assistance in aiding the California producers to organize and formulate their programs.

The member companies of the two associations, with an official of each who will serve as a member of the board of directors, are as follows:

*Southern California Rock Products Association*

Arrow Rock Company (M. F. Joyce); Azusa Rock & Sand Company (Harry E. Bender); Blue Diamond Corporation (W. J. Van Valkenburgh); Chandler's Palos Verdes Sand Company (L. H. Chandler); Consolidated Rock Products Company (Robert Mitchell); Graham Brothers, Inc. (Paul C. Graham); John D. Gregg; Manning Brothers Rock & Sand Company (Dewey Manning); Owl Rock Products Company (H. N. Goodreau); Edward Sidebotham & Son (E. R. Sidebotham).

*Southern California Ready Mixed Concrete Association*

Arrow Rock Company (M. F. Joyce); Azusa Rock & Sand Company (Harry E. Bender); S. H. Bacon Materials Company (S. H. Bacon); Blue Diamond Corporation (W. J. Van Valkenburgh); Consolidated Rock Products Company (Robert Mitchell); Graham Brothers, Inc. (Paul C. Graham); E. Lockett & Son (E. A. Lockett); Security Materials Company (George L. Eastman); Edward Sidebotham & Son (E. R. Sidebotham); Transit Mixed Concrete Company (L. Glenn Switzer).

## Union-Firm Contract Ordered by W.L.B. in Lone Star Case

The Fourth Regional War Labor Board in Atlanta, Georgia, has ordered a voluntary maintenance-of-membership contract with a 15-day escape period and check-off in a dispute case involving the Lone Star Cement Corporation, Norfolk, Virginia, and the United Cement, Lime and Gypsum Workers' International Union (A.F.L.), with the proviso that should a strike occur during the period ending February 15, 1946, the company could ask for modification or revocation.

Industry members dissented in an opinion that claimed that several stoppages of work had occurred during a trial period in which the W.L.B. had withheld union security. The majority of the board held that the provisional granting of union security will aid union officials in stabilizing labor relations with the firm.

## Vermiculite Institute Acquires Laboratory

A new scientific association, the Vermiculite Research Institute, with headquarters in Evanston, Illinois, has leased a swimming pool in that city for laboratory purposes. Vermiculite, a flaky ore having approximately 1,000,000 separate laminations per inch of thickness, has the quality of exploding its flakes into granules about 15 times their original size when suddenly subjected to high temperatures. This phenomenon is caused by the conversion of the water between the laminations into steam.

V. E. Watts, managing director of the institute, stated that vermiculite would have many applications to home and industrial construction after the war. It is at present being marketed in Australia, Mexico, India, Puerto Rico, Venezuela and Brazil.

## Monarch Cement Company Elects New Officers

The Monarch Cement Company of Humboldt, Kansas, has announced the election of the following new officers: Walter H. Wulf, president and general manager, succeeding Fred H. Rhodes (retiring); C. A Brooke, vice-president and sales manager; Gerald E. Gallaway, secretary-treasurer; and Miss A. M. Barrackman, assistant secretary-treasurer.

## Court Ruling Favors Workers in Dispute at Virginia Plant

It is unnecessary for a majority of the employees of a plant to participate in a collective bargaining election under the National Labor Relations Act, it was ruled May 11 by the Fourth Federal Circuit Court of Appeals at Richmond, Virginia, in ordering enforcement of an N.L.R.B. order directing the Standard Lime and Stone Company at Martinsburg, West Virginia, to bargain collectively with an A. F. of L. union.

Following two elections, the board had certified the United Cement, Lime and Gypsum Workers' International Union as the exclusive bargaining agent for eligible workers at the plant.

The company had been unwilling to bargain with this union on the ground that the majority of eligible workers had failed to participate in either of the elections. Rejecting this contention as without merit, the court stated:

"There is every reason to apply the sensible political rule to elections of this sort. The elections are held, not for the purpose of choosing representatives for the employees in their private and personal capacities, but for the purpose of collective bargaining, *i.e.*, for the purpose of setting up industrial democracy."

Asserting that the "establishment of such industrial democracy is the avowed purpose of the National Labor Relations Act," the court added that "it would be as absurd to hold that collective bargaining is defeated because a majority of employees fail to participate in an election of representatives as it would be to hold that the people of the municipality are without officers to represent them because a majority of the qualified voters do not participate in an election held to choose such officers."

The order affects only the Martinsburg plant of the Standard Lime and Stone Company, whose headquarters are in Baltimore, Maryland.

## New Rock Wool Firm Now in Production

The Elmac Company, recently formed to manufacture rock wool from dolomite at St. John, New Brunswick, is now producing. The rock wool is being put up in 40-pound paper bags for general distribution.

Partners in the new firm are S. E. Elkin and R. H. McLean, both of St. John. In addition to distributing the bagged rock wool to retail and wholesale hardware and building supply dealers in the eastern provinces, the Elmac Company provides its bulk product for insulating contractors in the same territory. The rock comes from New Brunswick and Nova Scotia quarries.

## Oregon A.A.A. Announces Limestone Contracts

The Oregon state A.A.A. committee recently announced that contracts have been approved with four limestone plants for a 93,000-ton supply of agricultural limestone to be delivered at a rate of 8,700 tons a month to farmers under the 1945 conservation materials program. The contracting plants are the Oregon Portland Cement Company, Oswego, Oregon, 66,000 tons; Limestone Products, Inc., Dallas, Oregon, 10,000 tons; the Sullivan Lime Company, Rogue River, Oregon, 16,000 tons, and the Spokane Portland Cement Company, Dolomite, Washington, 1,000 tons.

## W.P.B. Releases Data on 1945 Cement Needs

The Construction Research Division, Bureau of Program and Statistics, of the W.P.B. recently released estimates of cement requirements in 1945 based on a full-scale war. The revision of October, 1944, estimates, made on the basis of a one-front war, resulted from current military developments. Whereas October figures cited a total requirement of 108,744,000 barrels of cement, the April estimates were 89,400,000 barrels.

## New Plant to Serve Northern Pacific R. R.

Shiely - Petters Crushed Stone Company of St. Cloud, Minnesota, formed by the J. L. Shiely Company of St. Paul and Al C. Petters of St. Cloud, has been awarded the contract for constructing and operating a new crushing plant at Waite Park, near St. Cloud. The plant will be a part of the expansion program of the Northern Pacific Railroad to use reject stone from St. Cloud quarry operations for track ballast.

A new agricultural limestone plant, built by Marshall Carr, was recently opened at Neodesha, Kansas.

## California Highway Repair Projects To Cost $3,455,000

Highway-repair projects to cost $3,455,000 are being undertaken this year in California, according to an announcement by the California Department of Public Works. In practically every case, bituminous surfacing materials will be used and on many of the projects bases will be stabilized with Portland cement or by the placing of cushion courses.

Counties in which the larger jobs are located are: Lassen County, 12 miles, $220,000; San Bernardino County, 22 miles, $211,000; Tulare County, 11 miles, $104,000; Ventura County, 3½ miles, $144,500; and Alameda County, 6 miles, $141,000.

## Asphalt Institute Names Six Officers

The board of directors of the Asphalt Institute, which represents the major part of the asphalt producing industry in the United States and Canada, at their annual meeting in New York City, March 21, elected H. B. Pullar of Berry Asphalt Company chairman of the executive committee. The following were elected vice-presidents: F. R. Field, Division 1, Atlantic-Gulf; A. M. Maxwell, Division 2, Ohio-Great Lakes; C. E. Cox, Division 3, Mid-West; J. S. Williams, Division 4, Southwest; Ole Berg, Jr., Division 5, Pacific Coast.

## Prisoners Cause Strike At U. S. Gypsum Company

United States Gypsum Company workers at North Kansas City, Missouri, who went on strike in protest against the employment of ten German war prisoners at the plant, announced through their C.I.O. representative that they would return to their jobs April 10. The decision was announced after the prisoners had been withdrawn.

## Dynamite Explosion Kills Quarry Worker

One man was killed and four others were injured on April 9 at the Montgomery & Company quarry at Knob Lick, Kentucky, when a dynamite charge exploded prematurely. Otha Ervin, a worker, was instantly killed by the blast, which set off several sticks of dynamite.

# WASHINGTON NEWS LETTER

IN view of the tremendous advances made by the Allied armies since the first of the year, the final capitulation of Germany came as no great surprise, even to those military authorities who felt duty-bound to maintain the same official policy of extreme conservatism which had characterized U. S. Army announcements since the Ardennes breakthrough. In fact, from a production or economic point of view, V-E Day occurred a few weeks before the official presidential proclamation, as evidenced by the mounting and substantial cancellations of war construction projects and munitions contracts.

With the actual end of hostilities in Europe, the armed forces have had to face, however reluctantly, the inescapable fact of inventory accumulations of vast quantities of materiel. It is therefore inevitable that, despite the huge requirements of the Pacific war, cutbacks in military procurement will be large. The most reliable estimates now indicate that by the end of this year the decline in war production from the first quarter, 1945, rate will be almost one-third; and by the middle of 1946, the drop is expected to reach 50 per cent. Not all of these cuts have as yet been reflected in official schedules, but it would be foolhardy to anticipate that the cuts can be much smaller than those just mentioned. At best, and even this is unlikely, the cuts may be delayed two or three months beyond the dates indicated. These reductions in war expenditures pose the economic problem for the transition period between V-E and V-J Day. The general outlines of the government's program for this period have been made known through public announcements of the various agencies, although many crucial details remain to be supplied. These plans are being integrated through O.W.M.R. Director Vinson, who recently appointed as his deputy in charge of reconversion Robert R. Nathan, one of the really outstanding young men of the administration. Aside from the considerable ability he brings to the job, Mr. Nathan's appointment is a significant index of growing official acceptance of the idea of the government's responsibility for high levels of employment. As summed up in his recent book, *Mobilizing for Abundance,* Mr. Nathan's post-war economic ideas involve a high degree of government activity designed to maintain effective demand in the economy by reducing private savings, stimulating private investment, and "fill in the gap" with public spending.

* * *

Neither economists nor politicians have as yet settled the question of how much and what kinds of government control are necessary or desirable to maintain a full employment economy after the war. But, for the reconversion period, responsible officials see no realistic alternative to a continuation of much of the economic regulation introduced during the war. It is now commonly recognized that the greatest single threat to successful reconversion is inflation, although serious deflationary factors will also be present in the economy. It is paradoxical, but true, that the most effective antidote for both dangers is the same—speedy and substantial expansion of civilian production as military production is curtailed. Increased civilian supplies will relieve the pressure on price ceilings, and, by keeping employment high and encouraging optimistic expectations of the future, will prevent the freezing of consumer spending and business investment. To assure rapid reconversion, a variety of government controls will be necessary, but these will have to be exercised with great discrimination and farsightedness if a careful course is to be steered. Wage controls, for example, are needed to bolster the anti-inflation program; but with unemployment of perhaps two or three million and the reduction of weekly earnings resulting from elimination of overtime in non-war plants, the stabilization policy must also be used to prevent a deflationary spiral. Similarly, price controls must be used to prevent excessive price rises and at the same time provide sufficient incentive for prompt reconversion. Taxes must remain high, both as a source of revenue and as a drain for excess purchasing power, but some changes will probably be made to stimulate reconversion activity.

Reconversion problems will also be complicated by the needs of war production which, despite the cuts, will continue to bulk very large in the economy until the defeat of Japan, and will receive top priority on the labor, materials, facilities, and transportation resources of the country. Some controls will, of course, have to be maintained to protect military requirements. In other cases, production and distribution controls will be necessary to prevent a wild and uneconomic scramble for released resources and to assure the production of the most essential goods first. In still other cases, controls will be necessitated by the expectation that shortages of certain materials will persist for some time. Textile, leather, tin, lead, various chemicals, rubber, and lumber fall into the latter category. The shortage of lumber, for example, is expected to restrict residential building to relatively low levels for many months, possibly until the end of the Pacific war. Supplies of most metals will ease considerably after mid-year as war output drops, but even here shortages will probably arise in specific shapes and forms; thus, considerable carbon steel will become available for civilian use, but sheet steel will probably remain tight until the end of the year.

The end of the war in Europe, of course, has removed the necessity for a wide variety of restrictions previously imposed upon the economy, and these are being revoked or drastically amended as quickly as possible. The basic economic controls, however, are to be retained not only until V-J Day, but probably until the reconversion process is largely completed.

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## Lone Star Cement Sales High Despite Shut-downs

Lone Star Cement Corporation of New York reported that sales and net profit for the first quarter of 1945 would be approximately the same as for the first quarter of 1944—sales, $6,200,000; profit, $458,000. Four Lone Star plants now are inactive, and a fifth, in Indiana, is about to close. Production in Cuba and South America has been limited by a fuel oil shortage.

The Norfolk, Virginia, plant, however, is operating on a seven-day-a-week schedule, supplying cement for the Navy. Despite lack of shipping space, the export business has been holding up well.

# New Plant Near Rosiclare Producing Ceramic Fluorspar, Zinc

By WILLIAM M. AVERY

View of principal plant building of Minerva Oil Company, Cave-in-Rock, Illinois. Conveyor from mine shaft is on the left.

another ON THE SPOT report

THE fluorspar and zinc mine and recovery plant of the Minerva Oil Company at Cave-in-Rock, Illinois, were placed in regular operation on March 1, 1944, culminating 4 years of prospecting and development work in a section of the

Five - inch conveyor - elevator which handles No. 1 dried spar concentrate.

fluorspar fields which had long been regarded as beyond limits. Becoming interested in the possibilities of the location in 1940, the company initially took an option on 3,000 acres to carry on the extensive drilling and metallurgical test work necessary to prove substantial ore bodies and determine the yields that could be obtained.

The Missouri School of Mines, the U. S. Bureau of Mines, the Denver Equipment Company and later on, others, participated in the extensive metallurgical testing. Late in 1941 it was decided to proceed with the sinking of a shaft and the construction of a recovery plant. The design of the power plant and the surface equipment was approved by the Defense Plant Corporation in 1942, and the Western-Knapp Engineering Company of San Francisco were retained as construction engineers.

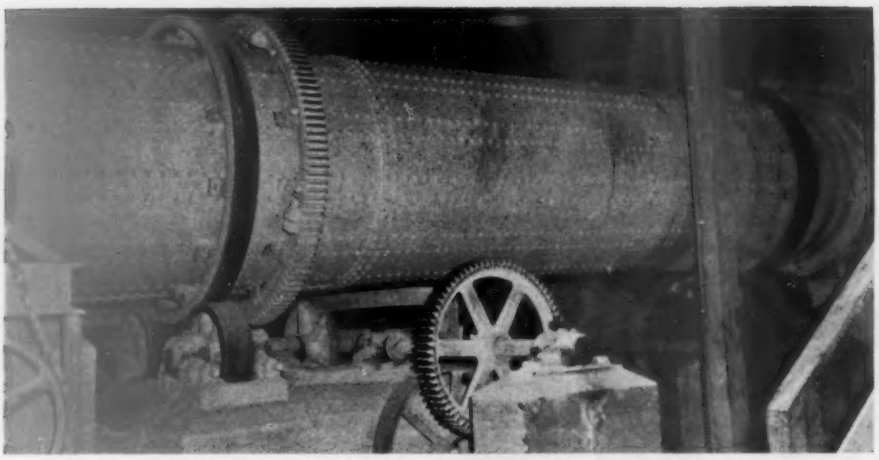
### Development and Mining

The work of sinking the 5- by 15-foot shaft was started in July, 1942. Borrowing from oil field practice a 6-inch hole was drilled to shaft depth, and squeezed with Dowell cementation equipment. Eleven hundred sacks of cement were placed in the nearly 300-foot thickness of sandstone beds. As a result no water seeped into shaft from this formation. A concrete curb measuring 5 by 15 feet inside was placed to a depth of 4 feet which sealed off surface water. In addition to the cementation, approximately 40 per cent. of the 645-foot shaft was lined with concrete to retain the Mississippian Age shales encountered.

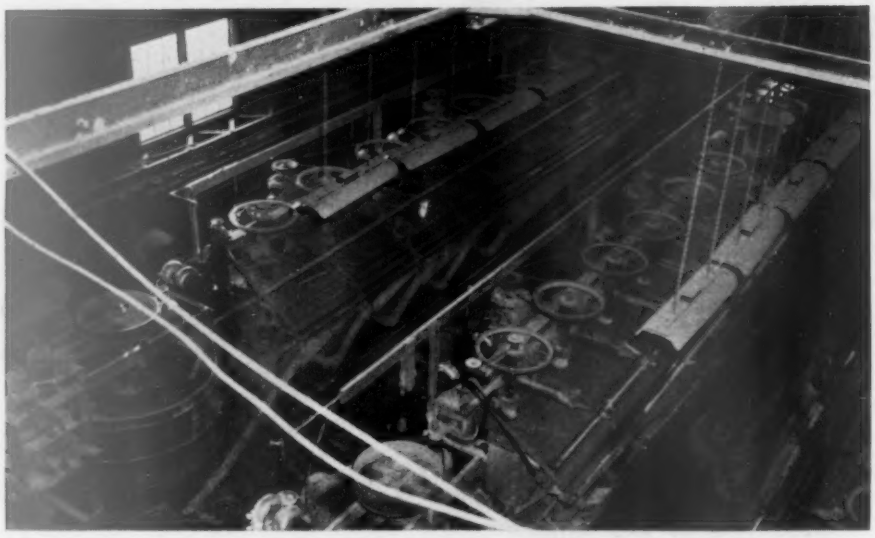
Core - drilling machine in operation in the mine.

The ore is a complex mixed fluoride sphalerite replacement in limestone with varying quantities of barite and calcite; it lies in flat lenses in the Renault, Levias and

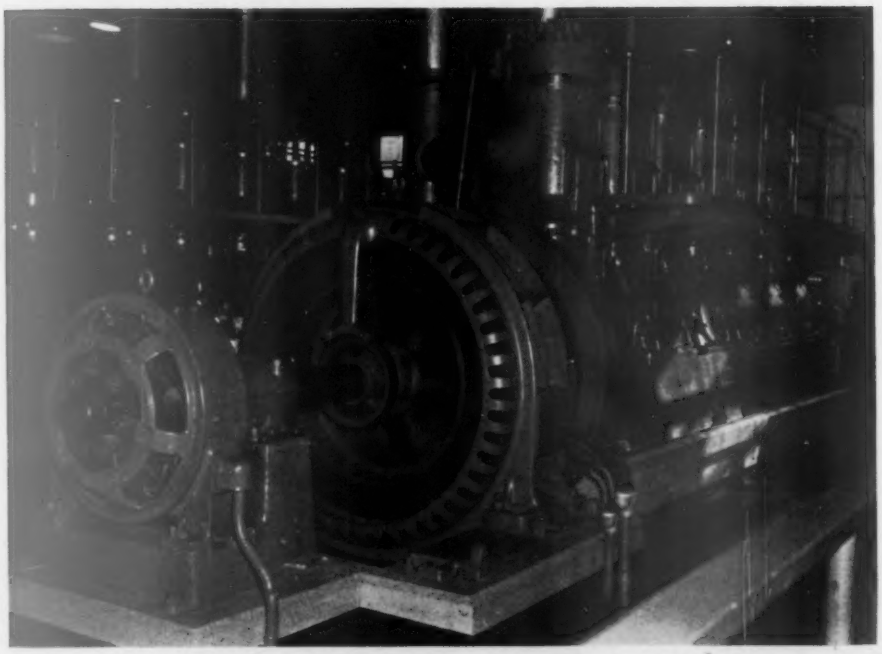
Below: The 60-inch by 27-foot screw classifier, and the 48-inch by 7-foot ball mill.



An indirect-heat type rotary drier dries the filtered fluorite.



View of some of the plant's flotation cells.



One of the 450-horsepower Diesel engines in the power plant.

Fredonia formations in parallel small faults trending northeast-southwest. Regular timbering is needed only in the Levias formation. The two ore bodies now under development produce 200 tons per day of run-of-mine ore and about 25 tons per day of development waste. The main haulage level is at the 630-foot level, shaft depth. From drifts on this level raises 30 to 60 feet high are put up to the Renault ore bodies now being worked. The raises are fitted with 10-inch grizzlies above and 30 by 36-inch air-operated gates below. The ore bodies dip northeasterly 7 feet in 100 so that eventually the main haulage level will take ore directly. There is also considerable ore below the main haulage level. The main haulage is on 24-inch gauge track with one-ton side dump cars hauled in 5-car trains by a 2½-ton Mancha storage battery locomotive. Mining is carried on by the room-and-pillar method.

In general the ore bodies are of great length. Their height is from 7 to 16 feet and width 70 to 300 feet so far as is known at this time. Large reserves will permit low-cost mining of a very uniform grade of ore for many years.

The absence of lead in an ore containing zinc is unusual, and makes possible the production of a metallurgically superior fluorspar concentrate. This fact, together with the uniform head feed, accounts for the zinc shipments frequently assaying higher than 64 per cent. zinc.

## Loading

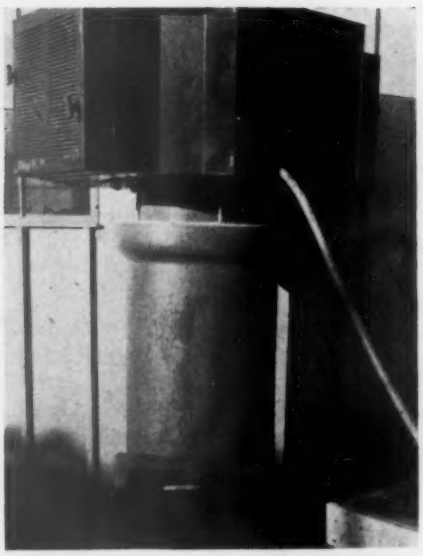
All ore is mechanically loaded by slushing over ramps into cars with 3-drum, 20-horsepower electric tuggers, loading directly into chutes. The company also uses an Ingersoll-Rand 3-drum hoist, 20 horsepower, mounted on a truck chassis which has a Marmon-Harrington 4-wheel drive. This unit, which the men have nicknamed the "jeep," can be driven into any section of the mine in which there is sufficient clearance. A 300-foot cable is used for connecting to the nearest power outlet. Direct loading to chutes by the "jeep" becomes unsatisfactory at a distance of 125 to 200 feet, depending on whether grade is against or in favor of the scraper.

At greater distances 4-ton cars on 36-inch gauge tracks are loaded over portable rubber-mounted ramps using the same 20-horsepower, 3-drum electric tuggers. The large cars are moved to the chute and dumped automatically by cable haul. Stationary ramps formerly used left much ore on the bottom and at the

Two 600-cubic-foot air compressors, one motor-, the other Diesel-driven, are housed in the power plant.

Head frame over the Minerva mine shaft.

Chuting ore from an upper level into the mine cars.



Each of the Diesel drives is equipped with an air filter.

Turbine-type oil burner which maintains a temperature of 400 degrees F. in the drier.

An evaporative condenser holds the temperature of the engine-cooling water to 125 degrees F.

The discharge end of the belt conveyor which feeds the plant. Note the pawl-and-ratchet automatic holdback on the head shaft.

Oil-well "mud" pump, used for pumping water from mine, handles 200 g.p.m.

sides, whereas the portable loading ramp gathers ore while the car is absent and loads rapidly when it returns. Scrapers are 48 inches wide except on the portable ramp where a 36-inch scraper is used. Development rock is loaded with a 12-B Eimco shovel.

### Drilling

Gardner-Denver CF-79 automatic drifters and a few mounted jackhammers and stopers are employed in the mining operation. All drilling is wet. Ingersoll-Rand detachable bits are used for drilling and the blasting is done with DuPont Number 2 Gelex.

When the mine was first opened a considerable amount of water was found with the ore body, but this has decreased to around 200 g.p.m., increasing and decreasing appreciably with rainfall. At first centrifugal pumps were used to handle the inflow, but they were found to be unsuitable because of the high content of very abrasive material carried by the water. Recently a 5- by 8-inch oil field mud pump, furnished by the Oil Well Supply Company, was installed in the mine to reduce repairs, which had been frequent with centrifugal pumps. Believed to be the first installation of a pump of this type for mine pumping, the results have been very satisfactory. Power requirements are much lower and automatic float control, not feasible with the centrifugal pumps, has reduced labor charges. The mine supplies 150 g.p.m. of water to the concentrating plant.

The shaft is up-draft with surface-mounted 5-horsepower blowers blowing down 6¼-inch drill holes. Blowers are moved up as new holes are cut. The mine has so far been entirely free of noxious or inflammable gases. Twenty-three men are employed underground on two shifts, although all the ore hoisting is done on a single daytime shift.

The two 2-ton Robert Holmes Brothers balanced skips are loaded by direct dumping from the cars. Skip boxes are self-latching and dump through the front at an angle of 50 degrees in the same manner as the familiar front-dump coal car. They were adapted from a design used by the Pekin Coal Company and permit the use of a considerably smaller shaft than would be required for conventional skips of the same capacity. The skip boxes are wide-mouthed (5 by 4 feet) and require only half the dump travel of an overturning skip.

The head frame, which measures 75 feet to the center line of the sheaves, was built of used 4½-inch oil field drill pipe welded throughout. The cost was low and the design has occasioned many favorable comments. A Lambert single-drum hoisting engine with a 150-horsepower motor is used for both men and material. The drum is 68 inches in diameter, and 1-inch rope is used on the 84-inch sheaves. The maximum speed is under 700 f.p.m.

The waste bin and the ore bin at the feed end of the plant are arranged with a winch-operated gate between them so that the skips from the mine can be discharged into either.

### Milling

A 36- by 98-inch Stephens-Adamson apron feeder below the main bin feeds ore over a 1-inch bar grizzly into the 10- by 30-inch Goodroads jaw crusher. The minus 1¼-inch crushed ore is discharged on a Stephens-Adamson 18-inch by

The jaw crusher into which ore is fed by the apron feeder.

180-foot inclined belt-conveyor, which has a belt speed of 150 feet per minute. Because of the steep incline of this conveyor (the rise is about 45 feet), the head shaft has been equipped with a Stephens-Adamson pawl and ratchet automatic holdback to prevent the loaded belt from reversing in the event of a power failure.

The conveyor discharges into a 250-ton crushed ore storage bin from which the ore is fed to the mill by a 24-inch by 12-foot Wemco belt ore feeder. The 48-inch diameter by 7-foot Hardinge conical ball mill makes an unusually large reduction, crushing the 1¼-inch feed

Left: One of the duplex diaphragm pumps. Right: A 6- by 6-foot conditioner.

down to 90 per cent. passing 150 mesh in closed circuit with a 60-inch by 23-foot Wemco spiral classifier. It should be noted here that there are no screens anywhere in the crushing and grinding circuit. Molybdenum-chrome balls ranging from 1½ to 3½ inches in diameter are used in the mill.

The classifier returns sands to the ball mill while the overflow passes on to a single Denver Sub-A flotation cell about 25 per cent. density. Here reagents B-23, Aerofloat 25 and potassium ethyl xanthate are used to scavenge shale, iron and oil; froth goes to waste and tailings are pumped to a Wemco 36-foot diameter by 10-foot thickener.

The thickened pulp is pumped to a 6-foot diameter Denver Equipment conditioner by a 4-inch duplex diaphragm pump, and the conditioner overflow enters the zinc flotation circuit. This consists of a battery of 9 Denver Sub-A 28- by 28-inch flotation machines equipped with rubber diffusers and impellers. copper sulphate, sodium Aerofloat, sodium Aerofloat "B," cresylic acid, Reagent 633 and potassium ethyl xanthate are used in this circuit to obtain a remarkable separation of zinc and fluorspar. Not more than 0.6 per cent. fluorspar is found in the final zinc concentrate, while the zinc tailings which feed the fluorspar flotation circuit run from 0.05 to 0.25, averaging 0.17 per cent. zinc, an unusually high recovery.

The final zinc concentrate, which averages 63 per cent. metallic zinc, is pumped to an 18-foot diameter by 10-foot thickener, which functions

as a wet zinc storage reservoir. The thickened concentrate is pumped to a United American-type 6-foot diameter 2-leaf filter before going to a 40-ton open storage bin to await railway shipment. Overflow goes to a 10- by 10-foot safety tank connected to the same diaphragm pump. The overflow from the safety tank goes to an outside tank, which salvages a car of fine concentrate annually.

Zinc tailings, which consist of calcium fluoride, barium sulphate, calcium carbonate and silica, are thickened in a Wemco 36-foot diameter by 10-foot thickener to keep the hard water and chemicals used in the zinc circuit from entering the spar flotation circuit. A 6-inch simplex Denver Equipment diaphragm pump lifts the thickened spar feed, which is brought up to 82 degrees F. in a 6-foot diameter Denver Equipment spar conditioner before it enters the fluorspar flotation circuit. This circuit consists of a battery of 6 Denver rougher cells, 2 scavenger cells, and a final battery of 9 Sub-A spar cleaner cells. The reagents used in the rougher cells include sodium cyanide, sodium carbonate, quebracho and oleic acid. Quebracho, sodium silicate, B-23 and cresylic acid are used in the final cleaning

Drum-type filter used for fluorspar concentrate.

circuit. Throughout the spar circuit only Zeolite-softened water is employed, whereas mine water is used exclusively in the zinc circuit. A total of 19 Clarkson Model E reagent feeders are used in the zinc and fluorspar flotation circuits.

The No. 1, or ceramic-grade, concentrate, which averages 96 per cent. calcium fluoride, is called No. 1 Fluorite. It goes to an 18-foot diameter by 10-foot thickener, which provides capacity for 100 tons of wet storage. The under-flow goes to an Eimco 4-foot diameter by 5-foot face drum filter fitted with a 60 mesh stainless steel outer screen, and the filtered product is then dried in a

Left to right: O. E. Anderson, mill superintendent; Gill Montgomery, general superintendent; J. H. Steinmesch, general manager; Claude Scott, yard foreman.

48-inch diameter by 26-foot Ruggles-Coles indirect-heat type rotary drier, Class B-2. The 400-degree F. temperature in the drier is maintained by a Ray, Size 3, Type AP-11, oil burner. Two Buffalo-Forge fans remove vapor and combustion gases separately from the drier.

The finished product is elevated and discharged into a 100-ton storage bin. An additional 200-ton dry storage bin is fed by means of a 5-inch Stephens-Adamson Redler conveyor. Ceramic-grade spar can be shipped in bulk or bagged in a St. Regis 2-nozzle bagging machine.

A varying proportion of froth is removed from the No. 8 or No. 9 cleaner cells at 88 per cent. $CaF_2$ and is designated No. 2 Fluorite. It is thickened, filtered and conveyed to a 1.000-ton concrete storage floor without being dried. A 3-drum electric tugger and a scraper are used for trimming the storage floor and for loading the material into trucks. This No. 2 Fluorite may be sold damp or dried for the glass trade.

The plant has occasionally produced acid-grade spar (98 per cent. calcium fluoride and less than 1 per cent. silica) but experience to date indicates that the silica is locked too closely with the spar to permit regular and commercial production of the acid grade. The ceramic industry provides a ready market for the No. 1 Fluorite. No. 2 Fluorite is variously marketed, some being used in steel plants, which have found the high grade fine-ground material superior for certain uses.

Since the first milling in March, 1944, production has increased steadily to the present rate of about 200 tons of crude ore per 24 hours, which is close to the maximum capacity at the present grind. Additional filtration equipment has been purchased and will be installed in the near future.

## Power Plant and General

The all-Diesel power plant, housed in a separate building, carries a load of from 8,000 to 10,000 k.w. hours every 24 hours, supplying power for the complete mining and surface operations at a cost of 1½ cents per k.w. hour. Two of the engines are Fairbanks-Morse 450-horsepower, 300 kv.a., units generating at 2300 volts and the third (also Fairbanks-Morse) is a 360-horsepower, 240 kv.a., engine. The temperature of the cooling water is maintained at 125 degrees F. by means of a Fairbanks-Morse evaporative condenser arranged in closed circuit with the engines. Each of the Diesel drives is equipped with an American 4-OC-H air filter at the intake end. A Honan-Crane filter clarifies the lubricating oil. Air is supplied by two 600-cubic-foot Ingersoll-Rand air compressors, Imperial Type 10. One compressor is driven by a 100-horsepower, 2300-volt unity power factor synchronous motor and one by a horizontal two-cylinder Diesel engine. High pressure air for starting Diesels is supplied by small single-stage compressor. A 190-g.p.m. Permutit Zeolite water softener is also located in the power plant, supplying soft water for the engine cooling system and for the fluorspar flotation circuit. Generation is fully automatic and there is a 14,000 gallon tank for soft water storage.

A laboratory for the determination of calcium fluoride, calcium carbonate, silica, barite, iron and zinc is in charge of Basil Walker. An

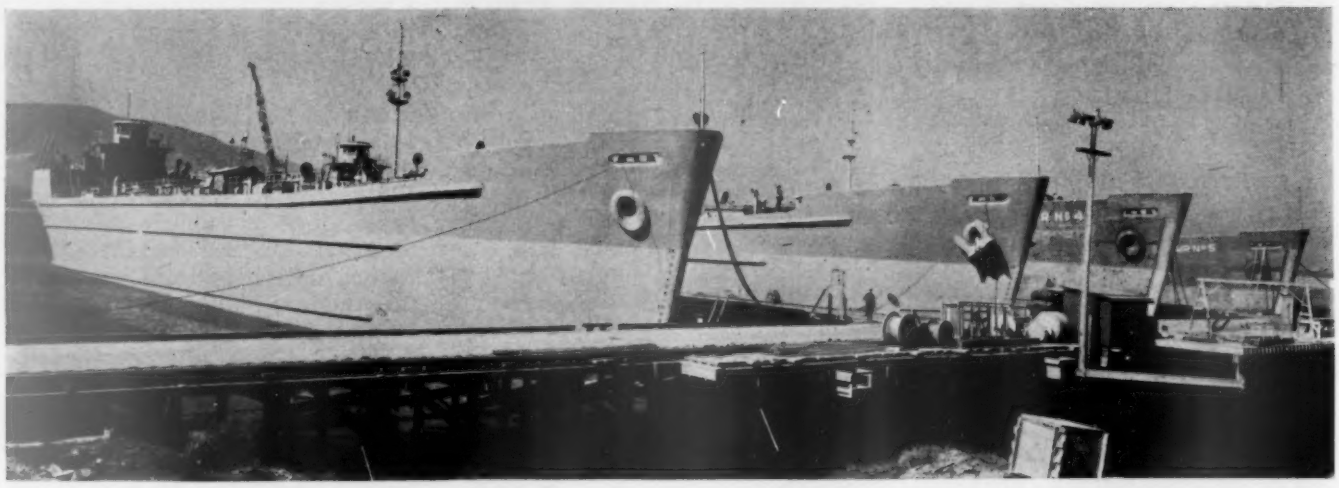
Chemical laboratory where all products are tested.

unusual feature is the running of several "quick limes" each shift by the float operators in the mill. By correlation with daily assays this control is both prompt (1 hour) and accurate.

Sales and purchasing, as well as mail, are handled at Eldorado, Illinois, Myers Building, Phone 190.

J. H. Steinmesch is general manager; O. E. Anderson, mill superintendent; C. F. Callahan, mine superintendent; Gill Montgomery, general superintendent, and S. J. Kelly is purchasing agent.

# APPLICATIONS OF HAYDITE WIDEN WITH ADVANCES IN PRODUCTION TECHNIQUES



Concrete barges at Belair shipyard, a part of the fleet built with Haydite from the McNear plant, San Rafael, California.

another ON THE SPOT report

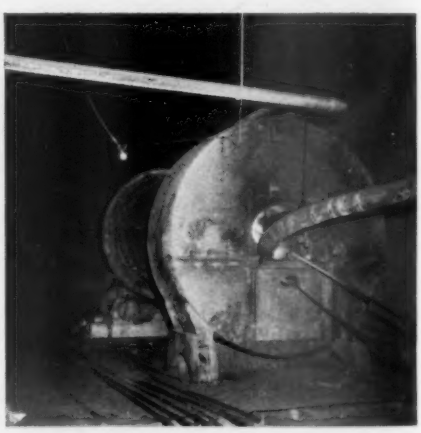
AMONG the light-weight materials in common use to-day as aggregates in concrete building blocks is Haydite, burned clay or shale aggregate honeycombed with small, non-connecting cells. In the building trade particularly the term Haydite has been so generally adopted as a common noun that many users probably do not know that the material was the invention of Stephen Hayde and derives its name from his. Since its original appearance on the market in 1913, the uses and applications of Haydite have grown steadily, keeping step with advances in the manufacturing technique which have made possible important improvements in the quality of the material.

The manufacturing process in general use to-day is simple and fairly well standardized. The argillaceous shale raw material used may

**By WILLIAM M. AVERY and HARRY F. UTLEY**

be mined either in a shaft or by the open-pit method, depending on the location of the deposit, the amount and character of the overburden and other factors. The shale is fed from raw storage bins to a dry pan where it is crushed and screened through 1½-inch rings. From the dry pan the crushed material is conveyed to a storage bin, and thence into a hopper located at the stack end of a rotary kiln approximately 50 feet long.

The kiln, which may be fired with either pulverized coal or oil, is operated with temperatures of about 1,000 degrees F. at the stack end and from 2,000 to 2,500 degrees in the "hot zone," which is about



Kiln used for the production of roofing granules or Haydite at the Western Brick Co.

Building which houses the four rotary kilns at the Western Brick Company, Danville, Illinois.

the last 15 feet. The moisture in the shale prevents the material from baking as it passes through the preliminary heating zone, and in the hot zone the argillaceous material becomes plastic and forms a surface coating on the particles. Meanwhile the expanding gases generated by the decomposition compounds present in the shale, blow the fusing clay full of small cells, expanding the particles materially and creating the roughness which is so desirable in a concrete aggregate.

The grinding and screening of Haydite clinker is subject to the same wide variation that characterizes all such operations. One com-

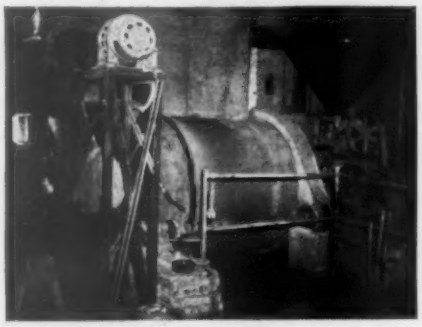
mon practice is to use a dry pan for crushing, adjusting the crushing mullers so that the desired gradation of Haydite will pass on to the screens. At the screens the material is separated into five marketable sizes: Grade AA (fine Haydite sand), passing ⅛-inch mesh; Grade A (regular Haydite sand), passing 3/16-inch mesh; Grade B (intermediate coarse Haydite), passing ½-inch mesh, retained on ¼-inch mesh; Grade C (coarse Haydite), passing ¾-inch mesh, retained on ¼-inch mesh; Grade BX (combined Haydite), passing ⅜-inch mesh, down to dust. The A and C grades of Haydite are generally used in combination for structural concrete, while the A, B and BX grades are considered best suited for the making of Haydite blocks. The AA grade of fine Haydite sand is used for finishing.

The finished Haydite is an absolutely inert, acid-resistant material with a reddish-brown color not unlike vitrified brick. It is free of silt, coal, loam or other deleterious

Kiln at McNear plant before it was enclosed. Note take-off belt which regulates feed.

materials, has a specific gravity of less than 1.0 and particles sufficiently sharp and hard to cut glass. Although Haydite is honey-combed with cells, they are small and non-connecting, and the toughness of the material protects the cellular structure against all ordinary strain or abrasion.

The principal uses of Haydite aggregate are in structural concrete, masonry units, refractory concrete and precast roof and floor slabs. Haydite concrete weighs from 30 to 60 per cent. less than concrete made with natural aggregates, and for special uses concrete weighing as little as 60 pounds per cubic foot has been produced. The lightness of Haydite concrete makes it particularly suitable where dead loads must be kept to the minimum. It has been used widely and with ex-



Ball mill used at Western Brick Company to pulverize coat.

cellent results for the construction of additional floors on buildings in which no allowances were made for future increases in the column loads. The strength of Haydite concrete compares favorably with that of natural aggregate concrete in which about the same amount of cement has been used, and tests generally show it to be somewhat superior in durability and resistance to fire and chemical attack.

Haydite masonry units are now made in a number of plants throughout the United States and Canada. In addition to their light weight—8- by 8- by 16-inch units weigh about 25 pounds—Haydite blocks have excellent insulation and acoustical properties. The conductance, or "c" factor, for 8-inch Haydite units is about 0.30 B.t.u. per square foot per hour per degree difference, while the comparable value for 8-inch natural aggregate concrete block is 1.00. The cellular structure of Haydite gives it good sound-absorption qualities, and Haydite masonry units are widely used for this purpose in apartment buildings, hospitals, schools, hotels, etc.

Haydite and Lumnite cement have been used successfully together in the making of refractory concrete, but this field of application is still relatively new. Haydite refractory concrete has been more successful than natural aggregates used for this purpose because the coefficient of expansion of Haydite is nearer—only slightly under—that of cement, and there is consequently less tendency for the material to rupture because of different rates of expansion under heat.

Haydite insulating fire brick for use as backups for the carbon blocks in aluminum coverting furnaces have been developed since the outbreak of the war. They have three times the strength of ordinary insulating fire brick and weigh less than half as much. The brick is not recommended for temperatures over 2,000 degrees F.

There is considerable interest at present in the use of Haydite in soilless plant culture as a growing medium for plants and flowers. The inert characteristic and cellular structure of Haydite make it especially suitable for growing in "gravel culture," and there may some day be a sizable demand for this purpose.

The suitability of Haydite for use in the making of precast roof tile has created a new substantial market for the material and several large firms are now engaged in the manufacture and installation of this product. Haydite channel slab roof tiles have been used extensively in defense plants erected since the outbreak of the war. Approximately 1,600,000 square feet of the tile was used in the St. Louis Ordnance Plant and over 1,000,000 square feet in the Curtiss-Wright buildings at Lambert Field, St. Louis. Among the more recently developed uses for Haydite is its combination with asphalt for floor slabs on naval and merchant-marine vessels, where its lightness and non-skid and non-spark characteristics are important.

Under a license arrangement with the American Aggregate Company of Kansas City, Missouri, the following firms now manufacture Haydite aggregate: John H. Black Company, Buffalo, New York; Carter-Waters Corporation, Kansas City, Missouri; Cooksville Company, Ltd., Toronto, Canada; Hydraulic-Press Brick Company, St. Louis, Missouri, and South Park, Ohio; McNear

Discharge end of hot clinker conveyor. (Western Brick Company)

Company, San Rafael, California; Washington Haydite and Concrete Products Company, Bothell, Washington; Western Brick Company, Danville, Illinois. Descriptions of the Western Brick Company and Mc-

Haydite units in McNear plant yard.

Near Company plants follow. A description of the Washington Haydite operations was published in the September, 1943, issue of PIT AND QUARRY.

The first licensee under the Hayde patent was the Western Brick Company, Danville, Illinois, where the production of Haydite was commenced in 1927 with a view to product diversification which would relieve the plant in some measure of its dependence upon the clay-brick market. The raw material used at this plant is a laminated shale which occurs in a bank approximately 60 feet thick beneath an average of 10 feet of overburden. No blasting is necessary, the clay being dug out of the solid mass with a Marion No. 125 steam shovel and loaded into 10-ton side-dump cars. The recovery is a year-round operation and only a small stock pile, sufficient for 2 days' operation is maintained.

• One of the vibration machines at McNear block plant.

The dump cars are hauled in trains over the 36-inch-gauge track to the crushing and screening plant, a distance of about one mile. Here the material is dumped into a Chambers 9-foot-diameter dry pan and sized from ¼ inch to 1½ inch over gravity screens.

The ground and sized material is stored in bins from which it is drawn through reciprocating feeders and fed at a uniform rate to the coal-fired rotary kilns. To maintain the maximum efficiency of the kilns and the desired gradation of the product all the minus ¼-inch fines are screened out and either wasted or used in the production of clay brick. Although there are four kilns in the plant, only 2 or 3 are normally used for the production of Haydite; one kiln is usually available as a stand-by unit or is used in the production of roofing granules.

Minus 200-mesh coal is pulverized in ball mills at each kiln; 2 Bonnot mills and one Kennedy-Van Saun mill are operated at the three kilns normally used for the production of Haydite. A unique jacket arrangement on two of the kilns uses radiated heat to dry the coal before it is fed to the pulverizers, utilizing for this purpose what would otherwise be waste heat. A Link-Belt Bulk-Flo conveyor feeds the dried coal back to the storage bins over the pulverizers.

Two burner nozzles are located at the discharge ends of each of the 6-foot diameter by 60-foot long kilns. One nozzle is concentric with the kiln and the other impinges about 3 feet from the end. The kilns rotate at the rate of about one revolution in 1½ minutes, and the maximum temperature of 2,200 degrees F. is reached at a point approximately 3 feet from the discharge end. The elapsed time from entrance to discharge is about 45 minutes, and during this period the particles increase in size from 50 to 100 per cent. due to the bloating effect of the gases liberated by the breaking down of the carbonates in the clay.

In the past this company has used variable-speed motors for driving the kilns, but it has found that once the economical speed of a given kiln has been determined, there is seldom any necessity for subsequent changes. Their units are usually built from old cement kilns from which the best sections are utilized. A good refractory lining will last from 5 to 8 years in constant operation, but intermittent operation brings about a drastic reduction in the life of a lining. Some Haydite producers in the past have preferred to pre-mix their material with water in a pug mill before feeding it to the kilns, but the operators of

Finished-material roll crusher. (McNear plant).

the Western Brick Company have found that this practice merely increases the cost of burning and has no measurable influence upon the quality of the product.

The clinker drops from the kilns onto a pan conveyor which discharges it into an open pit adjoining the plant. Here a stiff-leg derrick loads the material into 10-cubic yard side-dump cars which are hauled by a Plymouth gasoline locomotive to the grinding plant.

A Frost 9-foot diameter dry pan with ¾-inch openings, a Chambers 9-foot dry pan with ⅛-inch open-

ings, and a set of crushing rolls are used for reducing the clinker to the three general sizes produced. The sizing is accomplished by means of paddle screens arranged in closed-circuit with the dry pans, and the entire operation is mechanized to the extent that only one man is required to attend it. The graded materials are stored in four 30-foot diameter by 30-foot high bins from which they are loaded by a belt-conveyor into open-top railway cars for shipment.

View of Western Brick crushing and screening plant.

Shipments are made to block plants and to roof-and floor-slab manufacturers throughout the company's territory, which includes Indiana and Wisconsin, the northern three-fourths of Illinois, and part of Michigan. The maximum distance to which any appreciable volume of material is shipped is about 200 miles. The plant has a potential capacity of 140,000 cubic yards of Haydite per year, but the level of production is generally somewhat below the figure.

The Western Brick Company also operates its own block plant at Danville to supply the local market and to carry on research for other block producers using Haydite aggregate. For this purpose they operate their own testing machine and make available a form of consulting service for their customers. I. R. Cline is vice-president and general manager of the company and J. H. Mitchell is superintendent of both plants.

The equipment and the procedures employed in the production of Haydite are surprisingly uniform throughout the eight plants which are licensed to manufacture the material. To demonstrate this, let us consider briefly a plant located at the maximum possible distance from Danville, Illinois. The plant of the McNear Brick Company, located on McNear Point only a few miles from San Rafael, California, is about 20 miles north of downtown San Francisco and is reached overland by way of the Golden Gate Bridge. Located on the water front near the confluence of San Francisco and San Pablo Bays, it receives some of its supplies and ships much of its product by water. However, shipments are also made by rail and truck.

The deposit is in the Franciscan shale, and a brick plant was operated on the site for nearly 40 years. Twelve years ago the McNear interests converted the plant to the making of Haydite, and its facilities are now devoted exclusively to its production.

The raw material is excavated by two small gasoline shovels — a Speeder and a ¾-cubic yard P&H. Some blasting is first necessary to loosen the shale, which is loaded into 5-cubic yard dump trucks for transportation to the plant. The haul is of varying length depending upon the bank being worked, but averages about ¼ mile. To a great extent weather conditions govern the area being excavated, the high and dry shale being extracted during the rainy winter months.

Double-deck sizing screen at McNear plant.

At the plant the raw shale is dumped into a 25-cubic yard hopper which feeds a single-roll McLanahan & Stone 18- by 24-inch Sledge-Wedge crusher, an Allis-Chalmers No. 4 gyratory also being used at times. A 55-foot Link-Belt bucket-elevator carries the crushed material up to the 300-cubic yard 3-compartment plant bin. An inclined stationary screen above the bin scalps off the plus-1½-inch oversize which is chuted back to the crushers. Bin gates feed the rotary kilns via short belt-conveyors whose speed of travel is synchronized with the kilns for a proper rate of feed.

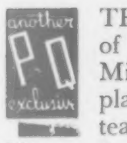
There are four kilns, three having been installed since the beginning of World War II to increase production capacity. The original kiln is 7 feet in diameter and 60 feet long. Two of the newer kilns are 6 by 45 feet in size, and the other is the largest of all—7 feet in diameter and 80 feet in length. Each is exhausted through a stack and fired by a Pan-American oil burner. The kilns are lined with refractory brick, and the speed of rotation varies from ½ to 2 r.p.m., 1 r.p.m. being normal. The material remains in the kilns from 20 to 30 minutes depending upon its moisture content, and burning-zone temperatures are maintained within close limits of 2,650 degrees F.

The burned, expanded Haydite is discharged from the kilns on two pan-conveyors. These have pans 4 feet wide and are inclined a short distance from the discharge ends of the kilns to build up storage piles outdoors, where the aggregate is allowed to cool. It is then reclaimed by a drag-scraper which discharges the yet unsized Haydite into the boot of a 38-foot bucket-elevator which carries it up to the screening tower. A Symons 42-inch by 12-foot double-deck inclosed vibrating screen does the sizing, the top deck carrying ¾-inch mesh and the bottom split into ⅜- and 3/16-inch sizing sections. The oversize from the upper deck goes to a pair of 24- by 24-inch corrugated rolls for reduction or to a Lippmann 18- by 24-inch 2-roll crusher if a higher proportion of fines is in demand. The roll crusher first mentioned was designed and built by the company. Each roll weighs 2,200 pounds but only one roll is driven. The space between the rolls is regulated by the addition or removal of shims on the unsupported end frame of the top idling roll. No springs are employed, the weight of the roll maintaining the required crushing pressure, which is relieved when tramp iron passes between the rolls, forcing the top roll to rise. Ribs of hard-facing material are applied to the

Shale crusher at McNear plant.

(*Continued on page* 68)

# Canadian Metallurgists Consider Industry's Post-war Prospects




THE 49th annual meeting of the Canadian Institute of Mining and Metallurgy took place in the historic Chateau Frontenac in Quebec City on April 17th, 18th, and 19th.

The meeting was devoted primarily to a consideration of how the industry and the institute may best

M. F. Goudge

serve Canada in reconstruction and re-establishment.

Two technical sessions of the Industrial Minerals Division of the Institute were held at which papers were presented by outstanding authorities in their various lines of endeavor. These papers were on subjects of lime, asbestos, alumina, ceramics, silica, and sand.

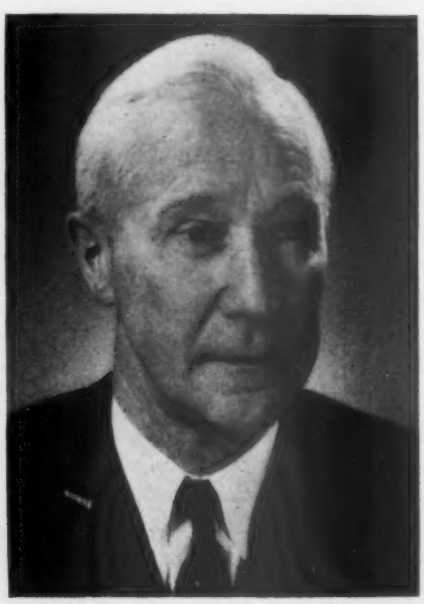
The chairman of the Division, M. F. Goudge of the Bureau of Mines, Ottawa, announced that following representations by the Division, the Institute was offering two prizes, to be known as the Industrial Minerals Prizes, to undergraduates of any faculty of any Canadian university for the best and next best papers on the value of the resources of industrial minerals to the social and economic life of Canada and showing how these resources are tied up with industrial activity. This is part of a program being initiated to create a wider interest in nonmetallic minerals.

Among those from sister organizations in the United States who attended the meeting as guests were Oliver Bowles, Chief, Nonmetals Economics Division, Bureau of Mines, Washington; Allan Bateman, Associate Chief, Metals and Minerals Division, Foreign Economic Administration, Washington; and C. Walter Stauffer, President, National Lime Association, Washington.

### Aluminum Sources

*Canadian Sources of Aluminum* by E. C. Harder, Vice-President, Aluminum Laboratories Limited, and W. K. Gummer, Aluminum Company of Canada Limited, Montreal, presented data accumulated by the above companies over a period of years, and particularly during the recent war years, on the sources of alumina in Canada and on methods of extracting it. The materials investigated included shales and clays in the maritime provinces containing 18 to 28 per cent. alumina, clays with 20 to 30 per cent. alumina in the prairie provinces, nepheline syenite deposits in Ontario containing 22 to 28 per cent. alumina, and anorthosites with 26 to 30 per cent. alumina found in eastern Canada from the Great Lakes to Labrador. Chemical analyses of the various clays and rocks were given and the processes used for recovering the alumina were outlined.

It was stated that a material having only a moderately-high content of alumina but containing a high percentage of alkalies might be preferable to one with high alumina con-



E. C. Harder

L. E. Westman, Chairman, Board of Directors, Chemical Institute of Canada.

tent and no alkalies, and also the relative ease with which the alumina can be recovered from the various materials must be kept in mind.

The authors conclude that anorthosite and nepheline syenite appear to offer the best possibilities of any Canadian raw materials for the production of alumina but that they cannot, under present conditions, compete on a cost basis with bauxite imported by boat from British Guiana.

### Ceramic Industry

W. G. Worcester, Head of the Ceramic Department, University of Saskatchewan, who 24 years ago established the first school of ceramic engineering in the British Empire, presented a paper *Ceramics and Industrial Minerals.* In this paper Prof. Worcester showed the close relationship between ceramics and industrial minerals and stated that the ceramic industry on this continent annually converts over 50,000,000 tons of nonmetallic raw materials into wares and products having a value in excess of $600,000,000. That this industry holds such an enviable position, he stated, is due to the fact that ceramic products are in a large measure of a kind highly essential to the daily needs of the people, and also to the fact that so many modern industrial activities are dependent upon ceramic materials. A long list of raw materials used in the ceramic industry is given in the paper. Prof. Worcester stressed the number not known to occur in Canada and made a plea for action to stimulate intelligent prospecting in the thought that many of them had been unwittingly

overlooked while the main interest centered on metallic minerals. In conclusion he suggested that arrangements be made to give special training in prospecting for non-metallic minerals to some of the young men with university training who will be returning to civilian life from service in the armed forces.

### Azbe Addresses Group

One of the features of the meeting was the very comprehensive paper on lime presented by Victor J. Azbe, consulting engineer of St. Louis, Mo., who this year completes 25 years of service to the lime industry of this continent. His paper of 30 chapters, *Economical Manufacture of Quality Lime,* was written to mark the occasion. Beginning with the arresting statement "If Canada had no lime and could not otherwise obtain it the industrialists should be glad to trade their gold industry for a lime industry." Mr. Azbe dealt with all angles of lime production. Beginning with fuels he compared solid, liquid and gaseous fuels, and gave data as to the efficiency to be expected from each. He dwelt on the standard types of vertical and rotary kilns and described a new type of vertical kiln in which limestone in pieces from ¾-inch up could be calcined very economically. Mr. Azbe predicted that unless improvements were made, rotary kilns would soon be abandoned for making lime, except for calcining the smallest sizes of stone. Data were also presented on methods of kiln control to obtain lime of desired properties for use either as quicklime or for conversion into hydrate. In conclusion Mr. Azbe gave figures on plant costs and referred to mechanization, labor, and kiln capacity. The paper called forth considerable discussion and Mr. Azbe was the recipient of many complimentary statements on the occasion of this his 25th year of service to the lime industry.

### Engine Sands

In a paper entitled *Engine Sands,* G. M. Hutt, Development Commissioner, Canadian Pacific Railway Company, Montreal, gave the results of his study of potential sources of engine sands in western Canada. Mr. Hutt stated that although his company alone uses as much as 12,000 tons of engine sands a year there is very little information available as to specifications. As a result of his tests on a number of sands that were being used and found satisfactory he arrived at the following conclusions: 1. Most of the accepted sands consist of quartz or granite grains that are angular in shape, but one satisfactory sand consists largely of limestone grains. 2 Nearly all of the sand is retained on an 80-mesh screen and most is retained on a 35-mesh screen. Less than 1 per cent. passes a 200-mesh screen. 3. The clay content of all good engine sands is negligible. 4. Even in the case of outstanding sands there is a marked lack of uniformity in grain size and very considerable tolerances are therefore allowable.

### Asbestos Industry

*Asbestos Fibre Exploration and Production Forecasts by Core Drilling,* a paper prepared by the Engineering Department, Canadian Johns-Manville Company Limited, Asbestos, Quebec, and presented by Charles Borror, head of that department, dealt with the recent extensive diamond-drilling campaign carried on at Asbestos during which 151 holes were drilled with a total footage of 95,454. Descriptions were given of the equipment used and of the modifications made in order to prevent any possible contamination of the mill rock with wood, grease, oil and ashes which would spoil the asbestos fibre and the resultant manufactured articles.

In logging the core, each fibre vein from the widest down to 1/32 of an inch in width was measured and, together with data as to the character of the rock, recorded on the log sheet. The portions of the core were then classified as good, medium, poor or waste. The classification was made by comparison with ore faces of which the mill recoveries are known. This permits the use of an empirical formula from which it is possible to forecast the recovery of the various groups of fibre from any particular part of the ore body. It has been found that invariably a better recovery of fibre is made from rock in place than from a section of core representative of that same rock. Data on drilling were presented in detail. A new bit drilled on the average 159 feet in the serpentine rock without resetting and a re-set bit lasted on the average for 163 feet. The cost of diamonds and setting them in the core bits amounted to 17.2 cents per foot, and the total cost per foot of hole was $1.52. The paper called forth considerable discussion.

Following this paper a beautiful film in technicolor was shown depicting the entire operations of the Canadian Johns-Manville Company at Asbestos, Quebec. Commentary on this film was supplied by George Foster, chief mining engineer.

### Silica Recovery

*Recovery of Silica from Ordinary Sand* by J. M. Cummings and W. R. Smith of the British Columbia War Medals Research Board, Vancouver, British Columbia, gave the results achieved in work on the beneficiation of ordinary sands by froth flotation in order to recover the silica grains therein for use in the glass industry. The sands used were ordinary river and bank sands, most of which had a content of not over 40 per cent. of quartz grains. The first step in the process is to clean the sand with sodium hydroxide and to get rid of slimes. The quartz and feldspar grains are then floated out together. The grains are then etched with hydrofluoric acid and in an acid circuit the feldspar grains are separated from the quartz. Long-chain amines serve as collectors for both stages. The quartz grains are then dried and any remaining ferromagnesian minerals are removed by magnetic separation. By this method it has been found possible to make a recovery of about 50 per cent. of the quartz and to get a product consisting of 98 per cent. silica and containing in some instances as low as 0.06 per cent. iron. The economics of this process depend on having a market for the residual material as sand.

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## Experts Take Census of Potash, Phosphate Rock

According to statistics of the Bureau of Mines on available supplies of vital minerals in the United States, our phosphate rock reserves will last 805 years, and our potash supplies, 117 years. We are, of course, very happy that the Bureau has settled the matter, but one point still bothers us. Did the figures actually work out at 805 years and 117 years on the head, or were some months, weeks and days carelessly dropped from the report? Right now it doesn't seem important, but in 2,750 A.D. somebody will surely want to know. An immediate Congressional investigation seems in order.

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In Washington the House has approved a $500,000 appropriation for the Bureau of Mines for bauxite experiments.

# National Sand & Gravel Association Executives Discuss Vital Issues

another ON THE SPOT report

THE Executive Committee of the National Sand & Gravel Association and the directors of the National Ready-Mixed Concrete Association held a joint meeting at the Palmer House in Chicago on May 8. With more than forty members and guests of the associations in attendance, the morning and afternoon sessions dealt primarily with two recent rulings of the Wage and Hour Administrator with respect to the application of the Fair Labor Standards Act to the sand-and-gravel and ready-mixed concrete industries.

### Fair Labor Standards Act

A statement issued by the Wage and Hour Administrator on March 13, 1945, contained the following paragraph (as reported in PIT AND QUARRY for May):

Employees must be considered engaged in the production of goods for interstate commerce when engaged within a state in such activities as producing ice, electric energy, railroad ties, crushed rock, bituminous aggregate, ready-mixed concrete, telephone and telegraph poles, or other similar items for use or consumption wholly within the same state by interstate railroads, telegraph or telephone companies, etc., in carrying on interstate transportation or communication; or for use or consumption within that state in the maintenance, repair, or reconstruction of essential instrumentalities of interstate trade, commerce, transportation, transmission or communication.

Then, on April 10, 1945, in a letter addressed to V. P. Ahearn, executive secretary of the association, Mr. Walling made his position more specific. He stated:

Employees of a material man who are engaged in producing or delivering sand, gravel, ready-mixed concrete or similar materials for use within the state where the materials are produced are not considered to be engaged in *interstate commerce* (as distinguished from the production of goods for commerce) except in situations where they participate in covered construction, repair, or maintenance of instrumentalities or facilities of commerce, as for example, by spreading such materials on the roadbed of an interstate highway. See the Divisions' release G-162, issued May 15, 1941. Since we have not previously notified your association that employees exclusively engaged in transporting such materials to a construction site within the state and discharging their loads at such a construction site, are under certain conditions engaged in *interstate commerce* as distinguished from the production of goods for commerce, the Divisions will take no enforcement action based on engagement by such employees in interstate commerce prior to April 15, 1945.

Employees of a material man who are engaged in producing or delivering sand, gravel, ready-mixed concrete or similar materials for use within the state where such materials are produced may be covered by the act as employees engaged in the production of goods for interstate commerce, even though they may not be engaged *in* interstate commerce. This is true not only of employees who will be considered engaged in producing such materials "for commerce" as explained in the Divisions' release A-14, but it is also true, as the Divisions have consistently maintained, of employees performing work necessary to the production of other goods for interstate commerce. For example, employees hauling ready-mixed concrete to an oil-well site and discharging it into forms prepared for the foundation of the oil derrick would be considered covered on this ground if oil from the well may be expected to move to other states. Cf. *Warren-Bradshaw Drilling Co.* v. *Hall*, 317 U.S. 88, *Kirschbaum* v. *Walling*, 316 U.S. 517. Similarly, employees hauling such concrete to a factory used to produce goods for interstate commerce and pouring it into forms prepared in connection with the reconstruction or repair of the factory building are engaged in work necessary to the production of goods in the factory. Cf. Interpretative Bulletin No. 5, paragraph 13. Many similar examples of this basis of coverage could, of course, be given.

Mr. Ahearn outlined briefly some of the past history of the associations' attempts to obtain clarification of the Wage and Hour Act's applicability to the two industries, pointing out that the two most recent statements of the administrator contradict earlier rulings made under the same statute. He stated that there was grave concern throughout the industries in regard to Mr. Walling's new position on the applicability of the act, and he asserted that the primary purpose of the meeting was to determine what action, if any, the associations should take.

### Horsky Leads Discussion

Mr. Ahearn turned the discussion over to attorney Charles A. Horsky, who directed attention to the fact that the recent Walling statements effect two important changes in earlier rulings: (1) that employees of a producer of sand, gravel or ready-mixed concrete would henceforth be covered by the act solely by virtue of the *use* to which the material was put; (2) that employees hauling ready-mixed concrete and pouring it into forms in connection with reconstruction or repair of industrial plants are now considered to be covered by the act by virtue of their mere "participation" in covered employment.

The first ruling, Mr. Horsky said, was based on a court decision which held that employees engaged in the manufacture of ice used in interstate commerce were covered by the act, but that Mr. Walling's interpretation now attempts to apply the same principle to goods which do not "move" but are merely "used" in industries engaged in interstate commerce. He outlined briefly the various procedures by which the associations might test the validity of this interpretation.

Mr. Horsky and Mr. Ahearn answered many questions concerning the probable effects of the new rulings. In reply to one question Mr. Ahearn expressed the opinion that there is probably not a single sand-and-gravel or ready-mixed concrete firm in the country which is not engaged constantly in covered commerce under the new interpretation by the administrator. Mr. Horsky concurred in this view.

### To Confer with Walling

After hours of discussion in the course of which the subject was thoroughly explored it was decided by those present that the officers of both the National Sand & Gravel Association and the National Ready Mixed Concrete Association will confer with Wage and Hour Administrator Walling seeking a clarification of his ruling and possibly arranging for a friendly procedure for testing its legality. The associations have retained special counsel for giving assistance to interested members of both associations on specific problems arising under the ruling.

### Bills Pending

Executive Secretary Ahearn announced that two bills have been introduced in the Congress affecting the time within which suits may be brought by individuals. He mentioned H.R. 2788, introduced by Representative John W. Gwynne of Iowa, which seeks to amend the judicial code to limit to 2 years the time within which a public action can be brought and to 1 year the time for private suits. This bill has been referred to the House Judiciary Committee. The other bill,

S. 760, introduced by Senator Johnson, and referred to the Senate Education and Labor Committee, would place a 6-month limit on the time within which private actions may be brought.

### O.P.A. Speaker Heard

During the lunch that followed the morning session Walter Acheson of the Office of Price Administration in Washington told those present that numerous construction materials are still short. High-calcium lime and metallurgical lime are still hard to get, while the availability of building lime has not yet improved. Gypsum products are short on the eastern seaboard, particularly in Florida. There are still shortages of concrete blocks, as in Florida, for example. Of sand and gravel, however, there are no shortages anywhere in the country and the same is true of ready-mixed concrete. The lumber situation, he believes, will not improve until after the end of the war with Japan.

Speaking of construction materials generally, Mr. Acheson said he saw no chance for an increase in production until some free American labor can be put back to work in the plants producing them. Price increases will not bring more output, because the labor is not available. For that reason, he contended, price control must be retained. He said, too, that it would be foolish to exempt one branch of the construction-material industries from price control because of the pressures that would then be placed on the O.P.A. from all other branches.

As the speaker viewed the situation, price control will probably have to be continued for another year or perhaps a year and a half. The O.P.A., he said, will relinquish present controls as soon as the inflationary tendencies, against which price control was designed to operate, have passed. Each industry naturally seizes upon the exemption of another industry as an argument for demanding price relief in its own field.

Referring to available means of obtaining relief from price control, Mr. Acheson spoke briefly of two forms in which such relief can be granted under Maximum Price Regulation 188. Relief may be given to an individual producer on the ground that there is a local shortage of the material he produces. In some areas—St. Louis, for example—adjustments of as much as 20 cents a ton on sand and gravel have been approved in individual cases. An industry-wide adjustment may be granted on the application of the entire industry in any area or any segment of the industry, he said.

New regulations, now being prepared but not yet in effect, will make it possible for any member of an industry to apply for a price adjustment. The applicant must show that his supply can not be replaced or not at prevailing prices. Producers will be allowed adjustments based on the ratio of present earnings to those of the base period—1936 to 1939. No changes are being made in the O.P.A.'s policy regarding adjustment applications from an industry. Under the new regulations it will be possible to pass on to reseller channels the amount of any price increase approved. The O.P.A. is conducting "spot" investigations to determine whether the increases granted to cement manufacturers can be absorbed, and as a result ready-mixed-concrete manufacturers have been allowed to pass on to their customers the added cost of production laid on them by the approval granted to the cement industry. Concrete-products manufacturers, however, have not been allowed to pass on to their customers the cement-price increases they have had to bear.

The O.P.A. selected as its base period the years 1936 to 1939 because these were the most recent years prior to the war that might reasonably be considered "normal," and limits present profits to the attainment of the same dollar profits as were realized in that base period. Where current profits are 115 per cent. of the base-period dollar profits, the O.P.A. will approve a price increase that will cover manufacturing costs. Where current profits are from 100 to 115 per cent. of the base-period dollar profits, it will approve prices based on total cost—manufacturing costs plus selling costs. If current profits are less than those of the base period, it will approve prices based on total cost (manufacturing plus sellings costs) plus a profit.

### Price Control Defended

Despite the early errors of price control, it has worked, the speaker asserted, and it should be continued. He said that V-E Day is not an excuse for eliminating price control. In the last war, he said, a 50-per cent. inflation followed Armistice Day, while in the present war we have experienced nothing like that. He said that volunteer compliance with O.P.A. regulations by business men was largely responsible for the good results that have followed the imposition of price control.

### Exemptions Discussed

At the afternoon session Director of Engineering Stanton Walker spoke of the procedure to be followed by sand-and-gravel producers who believe they are entitled to seasonal exemption from the provisions of the Fair Labor Standards Act. Some six or seven years ago, he said, that part of the industry located north of the 20-degree isotherm was granted exemption, and this exemption can be extended to other producers who are forced, by weather conditions, to operate during only a part of the year if they can show that 90 per cent. of their total annual production occurs in 6 consecutive months. Applications for such exemption should, he advised, be handled through the national association's Washington office.

In view of the decision made by the United States Supreme Court on May 7 in the Jewell Ridge Coal Company case, V. P. Ahearn, the association's executive secretary, thought it would be unwise for any producer to require his employees to be at any certain point at a certain time unless he is prepared to pay for the time spent in traveling there.

### Owner-Driver Problem

As a preliminary to a discussion of the owner-driver problem, in so far as it requires a determination of whether or not such drivers are covered by the Fair Labor Standard Act, Mr. Ahearn presented an analysis prepared for the association by Robert Ash, Washington attorney. The point to be determined in the relations between producers and truck owner-drivers is the status of the latter; are they employees of the producer or independent contractors? If they are employees, producers who use their trucking service are liable for Social Security taxes and for the withholding of income taxes. If they are independent contractors, producers are not liable for either of these taxes, although they will be liable for the 3-percent. transportation tax. Because the amount of business done by sand-and-gravel producers varies with the season of the year and for other reasons, they do not feel justified in buying enough trucks to handle their peak demands, knowing that at other times many such machines may be idle. They normally buy, therefore, only enough equipment to handle their minimum demands and at times of peak de-

mand contract with truck owners to deliver their products from their plants to the points of shipments or use. The cost of this trucking service is paid for on a basis that takes into consideration the amount of material hauled and the distances over which it is hauled. Some producers own no delivery equipment, but contract with truck owners for all their delivery needs.

Mr. Ash reviewed the Grand Rapids Gravel case, litigated in 1943 by the National Sand & Gravel Association and the National Ready Mixed Concrete Association in an effort to obtain a test ruling, and said that the decision in this case—which was made in favor of the government and held that truck owner-drivers were not independent contractors but employees—did not finally dispose of the question, which was the subject of further litigation in other courts. As a result of his study of all such decisions, Mr. Ash was unable to advise the adoption of any general rule applicable to the entire sand-and-gravel industry, but he did think that it is possible to establish the independent-contractor relationship in all cases where producers actually contract with truck owners for the transportation of their products. He quoted the statement of the Commissioner of Internal Revenue in A. & C. Collector's Mem. No. 5722, which says: "It is now the position of the Bureau that generally owner-drivers will be considered to be independent contractors for employment tax purposes." Mr. Ash's analysis suggested that each producing company put its hauling arrangement in the form which has been approved by the courts and which the Commissioner accepts as correct. He believed that, in spite of local differences, a uniform contract could be used. He warned against oral agreements.

### Members and Guests

The following members, employees and guests of the associations were present:

Ahearn (V.P.), National Sand & Gravel Association, Washington.
Avery (William M.), *Pit and Quarry,* Chicago.
Clicquennoi (I. M.), Waukesha Washed Sand & Gravel Co., Milwaukee.
Conrades (Otto S.), St. Louis Material & Supply Co., St. Louis.
Dalton Jr. (Jeremiah J.), N. Ryan Co., Brooklyn.
Davison (E. K.), J. K. Davison & Bro., Pittsburgh.
Davison (H. S.), J. K. Davison & Bro., Pittsburgh.
Dixey (Joseph H.), Joseph H. Dixey Co., New York.
Foster Jr. (Alexander), Warner Co., Philadelphia.
Fredericks (Norman J.), Koenig Coal & Supply Co., Detroit.
Goldie (William), Goff-Kirby Co., Cleveland.
Graham (Paul C.), Graham Brothers, Los Angeles.
Gray (C. Dolly), Ready Mixed Concrete Corp., Indianapolis.
Hagen (Frank), Graham Brothers, Los Angeles.
Hill (J. Rutledge), Gifford-Hill & Company, Inc., Dallas.
Hole (W. Edward), American Aggregates Corp., Greenville, O.
Horsky (Charles A.), Washington.
Johnston (V. O.), Lincoln Sand & Gravel Co., Lincoln, Ill.
McCracken (James F.), American Builders' Supply Co., Louisville.
Mitchell (Robert), Consolidated Rock Products Co., Los Angeles.
Neville (M. A.), Western Indiana Gravel Co., Lafayette, Ind.
Nordberg (Bror), *Rock Products,* Chicago.
Nunan (Edward J.), Buffalo Slag Co., Buffalo.
Pelsue (H. F. Garvin), Metropolitan Sand & Gravel Corp., New York.
Phillips (Stanley A.), *Pit and Quarry,* Chicago.
Popplewell (Thomas), Fort Worth Sand & Gravel Co., Inc., Fort Worth.
Porter (Robert F.), H. T. Campbell Sons Corp., Baltimore, Md.
Prange (Lester), Tews Lime & Cement Co., Milwaukee.
Prince (John), Stewart Sand & Material Co., Kansas City, Mo.
Renwick (G. W.), Chicago Gravel Co., Chicago.
Rideout (O. R.), Boston Sand & Gravel Co., Boston.
Rockwood (N. C.), *Rock Products,* Chicago.
Scheinin (Joseph M.), James A. Norton, Inc., New York.
Shirey (Charles W.), Waterloo, Ia.
Spratlen Jr. (F. P.), Spratlen-MacDougall, Inc., Denver.
Stepanian (Stephen), Arrow Sand & Gravel Co., Columbus, O.
Stumpf (C. M.), McGrath Sand & Gravel Co., Lincoln, Ill.
Sutton (E. Guy), Neal Gravel Co., Mattoon, Ill.
Thomson (Harry F.), General Material Co., St. Louis.
Walker (Stanton), National Sand & Gravel Association and National Ready-Mixed Concrete Association, Washington.
Warner (Julius J.), Richter Concrete Corp., Cincinnati.
Weaver (R. E.), Lincoln Sand & Gravel Co., Lincoln, Ill.
Willert (Ernest W.), Tews Lime & Cement Co., Milwaukee.
Wyckoff (W. H.), Merom Gravel Co., Indianapolis.

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### Haydite (*from page 63*)

rolls by welding to improve the "bite" and resist abrasive wear.

The three products of the screen — ¾- to ⅜-inch, ⅜- to 3/16-inch, and minus 3/16-inch—drop into truck-loading bins below. Considerable Haydite is also held in open storage for sudden heavy demands. A secondary screening plant located near the main screening plant utilizes surplus Haydite for the production of extremely fine material which is packed in 2-cubic-foot bags and sold for miscellaneous purposes.

This plant has a capacity of 400 cubic yards in 24 hours. William H. Thomas is the general manager. The Haydite Products Company, with offices in the Rialto Building in San Francisco, is its marketing organization. The production capacity of the plant was increased shortly after Pearl Harbor to insure an adequate supply of Haydite for the construction of a fleet of concrete ships at the Belair Shipyards. These vessels, built by the contracting firm of Barrett & Hilp in special basins at the shipyard, utilized 60,000 cubic yards of Haydite in a single year at the peak of their construction. Water was admitted to these specially-constructed basins after the hulls were poured and cured and the ships thus placed afloat without the benefit of the conventional launching procedure.

Also located on the brick company premises is the Haydite Concrete Products Company, a comparatively new venture which utilizes much of the output in the manufacture of concrete blocks. The block plant is operated by G. F. Steigerwalt, well known in the products industry for his long connection with the Portland Cement Association at its headquarters in Chicago. The plant is compact, and high production is attained through the utilization of two Stearns No. 7 Joltcrete machines for making the units. The mixing is done in 12- and 18-cubic foot Stearns batch mixers. Overhead sprays in the curing building provide the moisture for thorough curing. Practically the entire output is sold in San Francisco, Oakland and the Bay area, an 8- by 8- by 16-inch unit, which happens to be the most favored size in that territory, selling for 18 cents f.o.b. plant. It is also of interest that the company crated and shipped thousands of units to Hawaii for use in an engine test building in recent months.

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## Fire Destroys Equipment at Rock Crusher Plant

A fire of unknown origin recently resulted in losses estimated at $10,000 at the rock crusher plant of M. C. Lininger & Sons of Medford, Oregon. Because a new generator and other equipment were destroyed, the plant has been closed down until new parts can be obtained.

# Vermont Asbestos Solves Mountain Haulage Problem with Aerial Cableway

another ON THE SPOT report

IN many years of traveling about this country visiting various nonmetallic-mineral producing operations the writer has watched the growth and development of many industries and the individual operations in them. None have been more interesting than the operations of the Vermont Asbestos Mines, Division of the Ruberoid Company, on

**By W. E. TRAUFFER**

A reproduction of an oil painting by Chauncey F. Ryder, depicting the asbestos mine of the Ruberoid Company.

Belvidere Mountain, near Eden, about 17 miles north of Hyde Park, Vermont. When first visited in 1936, eight years after operations were begun there, this was the only producer of non-spinning, short-fiber, chrysotile asbestos in the United States and its largest producer of asbestos. It is still the largest but, of course, does not compare in size to some of the larger operations in Canada. Successive articles published in PIT AND QUARRY have described the various important expansions and improvements in these operations.

When first described in the December, 1936, issue the quarry was in process of being developed and had a capacity of about 50 tons per hour. The plant also was a comparatively simple operation.

The next article, published in the June, 1939, issue, told how the quarry had been enlarged and concrete roads built for the dump trucks. Its capacity then was 100 tons per hour. The plant was improved by the installation of a vibrating screen and a secondary crusher in closed circuit, a third and larger drier, and two 5,000-ton concrete storage silos. Additional milling equipment was also installed.

A third article, published in the February, 1942, issue, described the 15-ton crawler trucks which replaced the original dump trucks in the quarry.

Foreseeing the eventual exhaustion of the original deposit, the company in 1939 began to make core-drill tests of another deposit on Belvidere Mountain about a mile from the plant. This drilling was done under contract by the Sullivan Machinery Company. After the ore body was outlined the deposit was blocked off in 100-foot squares. These tests proved the existence of serpentine ore of medium hardness and of sufficient quality and quantity to justify development. In 1941 a pilot plant for complete processing was installed and test pits and shafts were sunk. By the end of the year it was proved conclusively that

The stockpile, tramway and transfer terminal in the old quarry. Tunnel reclaiming conveyor to plant at right.

Looking down from quarry at secondary-crushing building, stockpile and tramway terminal.

the unusually long fiber obtained could be made into excellent finished products.

The main problem then was to find some economical means for transporting the ore to the plant, a straight-line distance of about a mile. The ruggedness of the terrain made it impractical to build a direct road over the mountain and the distance over existing roads around the foot of the mountain, 11 miles, was too great, especially with the final 900-foot climb up to the plant in a distance of 2 miles.

The only alternative was an aerial cableway or tramway over the mountain. This was decided on with a stockpile ahead of the main tramway and a short stockpiling tramway and tunnel reclaiming system in the old quarry to insure against stoppage of the mill due to quarry or haulage breakdowns. The plant can operate for several months from these piles. Severe winter weather—temperatures drop to 47 degrees below zero F. on the mountain—also does not affect the operation of the plant and the company is able to spread out its employment over the entire year.

In January, 1942, construction of the tramway, the crushing and storage facilities, and access roads was begun and carried on through the year. The primary and secondary crushers were brought from the plant. Among the many difficulties overcome was the lumber shortage. All the buildings and other structures at the new quarry are built of local timber cut and sawed at the site. Power is obtained from a 33,000-volt line built from the plant to a transformer station at the new quarry. The actual hauling and crushing of the rock from this quarry was begun on December 15, 1942.

The quarry was opened at the 1,400-foot level. The overburden, which varies from 0 to 30 feet in thickness, is removed by a combination of three different methods. The quarry shovel and a bulldozer are used where there is more than about 3 feet to be removed and these clean to within 6 inches of the ore except where there are pockets. The remainder and the shallow overburden are removed by hydraulicking. The necessary water is pumped from a pond, in a valley 400 feet below quarry level, which was created by a dam. The use of this method is not only practical for physical reasons but it also insures the removal of all the dirt, wood chips and other undesirable materials from the ore. The run-off water goes into the stream below the dam for disposal.

The drilling of blast holes is done with a Bucyrus-Armstrong T27 well drill with a 6⅝-inch bit. The holes are spaced 15 to 17 feet apart along the face, which now has a maximum height of about 80 feet. Shots average about 30 holes and bring down up to 75,000 tons of rock each. The yield of 5 tons per pound of explosive and the unusually good breakage are partly due to the seams of fiber in the ore. Primacord-Bickford safety fuse is used.

The secondary drilling is done with Ingersoll-Rand Jackhammers which are supplied with air by an Ingersoll-Rand 350-c.f.m. compressor and two Sullivan 125-c.f.m. compressors. For both primary and secondary shooting 40, 50 and 60 per cent. dynamite are used as needed. From 200 to 300 secondary shots are made simultaneously and these are detonated by line current.

The ore is loaded by a 1¾-cubic yard Marion electric shovel, which has a 1-cubic yard dipper, into Euclid 15-ton crawler wagons. The two wagons are hauled by three International TD-18 tractors, one of which is a spare and is equipped with a bulldozer so that it can be used for cleaning up the deposit, maintaining roadways, removing overburden, etc. The average length of haul from the quarry face to the primary crusher is now about 200 feet.

The ore is discharged from the hydraulic side-dump bodies into a chute at the edge of the quarry floor. The feed to the Traylor 28- by 36-inch primary jaw crusher is regulated by means of tractor tracks suspended over the chute and weighted at their ends. A hoist can raise or lower the tracks as desired. The minus-5-inch material from the crusher is carried on a 36-inch by 100-foot belt-conveyor to a stationary bar grizzly with 1½-inch open-

Loaded bucket about to ascend mountain from loading terminal.

Main tramway loading terminal with loaded pan emerging at left.

Vibrating feeder loading weighing cradle from which 1-ton batch is dumped into moving bucket.

ings. The oversize material drops into the Symons 4¼-foot standard-cone secondary crusher set at 1½-inch opening. The grizzly throughs and the crusher product are carried on a 24-inch by 500-foot downhill belt-conveyor to a 15,000-ton stockpile. The bulldozer is used to build up the pile from which the rock is withdrawn through a tunnel on a 24-inch by 400-foot downhill belt-conveyor to the 50-ton bin at the cableway loading terminal.

The present 1,400-foot level of the quarry is about 200 feet above the tramway loading terminal and the primary crusher is about 1,000 feet uphill from it. As lower levels are opened the crusher will be moved downhill toward the terminal and the conveyors will be shortened. The next level will be 100 feet lower and will be opened in about two years when the present level will have been worked back several hundred feet. The next 100-foot drop will probably be made from four to six years later and this will put the primary crusher at the loading terminal.

The Interstate Equipment Corporation aerial tramway is of the continuous-bucket type with automatic feed and has a capacity of 120 tons per hour. It is about 5,000 feet long horizontally from the loading to the discharge terminal and carries the ore from the 1,200- to the 2,200-foot level and thence almost horizontally to the plant. There are 7 intermediate towers with a maximum span of 1,500 feet between two high points. The 42 flat-pan type 1-ton buckets are permanently connected to a 1-inch haul

A tractor-hauled crawler wagon dumping its load into primary crusher.

cable—6×16, steel center—and ride on continuous track cables—19-strand, single wire. On the load side 1¼-inch cable is used and ⅞-inch on the return side. Each bucket makes the round trip in 24 minutes. One of the buckets has an oil tank attached to it which drips oil on the cables. The haul cable is oiled by a drip at the sheave. The tramway is driven at the discharge terminal through V-belts on one grip sheave by a 125-horsepower slip-ring motor. It has a G. E. control at the loading terminal which, in case of a slowdown or stoppage, releases a spring brake which prevents the loaded tramway from reversing. The towers and terminals are steel on concrete footings.

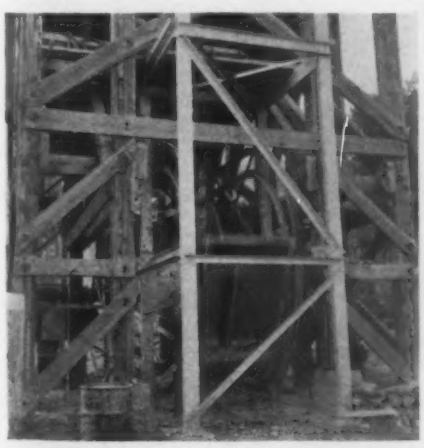
The automatic feed to the tramway from the 50-ton feed bin consists of a Jeffrey-Traylor electric vibrating feeder which loads a counterbalanced cradle and is shut off automatically by a disconnect switch when the 1-ton batch is completed. As a tramway bucket comes around the end sheave under the cradle it trips a discharge lever and receives the load. As the empty cradle then comes up it closes and hits another switch which again starts the feeder. The inevitable spillage drops into a 2-ton capacity bucket which rests on springs and, when full, contacts a switch so that it is automatically hoisted and the material dumped back into the bin.

The ore is discharged from the tramway into a 50-ton steel bin at the transfer terminal, from which the single 4-ton bucket of the storage or disposal tramway is loaded. This system has a 1,200-foot span to its tail tower and the bucket discharges its load at a height of about 100 feet above the quarry floor. The bucket makes its longest round trip, including loading and dumping, in about 2 minutes. The capacity of this system is about 20 per cent. over that of the main tramway or about 145 tons per hour, giving the operator some flexibility of disposal.

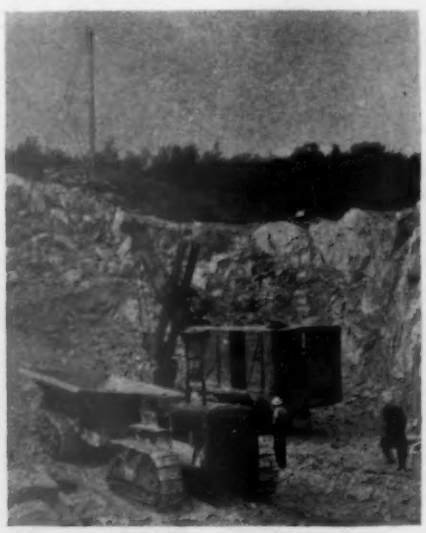
The bucket is supported on 1¼-inch track cables and has a ⅝-inch load line. A screw mechanism actuated by the turning of the bucket wheels can be set so that it will open the discharge gate over any desired point in the quarry. The bucket is loaded under the bin through a heavily-counterweighted gate which it automatically opens as it comes in and which closes when it leaves.

The stockpile has a capacity of

(*Continued on page* 73)



Terminal sheaves of tramway with bucket moving into position for loading.



Electric shovel loading crawler wagon. Well drill in background.

Weight-recording machine which tabulates the amount of product stored.

# New Plant Produces Bituminized Aggregates for the Chicago Area

another ON THE SPOT report

By William M. Avery

DON WHITE, president of White Consolidated, Inc., was one of a group of contractors (Sollitt, Lancaster & White), which constructed the Ottumwa Naval Air Station near Ottumwa, Iowa, during the winter of 1942-43[1]. The bituminized aggregates for surfacing the two octagonal landing mats and the 600- by 1,000-foot drill field at this primary training station were supplied by a new Simplicity System Model S-75 asphalt plant operated by the contractors. Despite an unusually severe winter and one of the wettest springs on record, the work was completed in excellent time, the plant producing 110 tons per hour over long periods with a 12-man crew. Mr. White had planned, upon completion of the job, to move this plant to Chicago, but the Navy exercised its option to take over the equipment.

In 1943, Mr. White's company sought priorities for the purchase of a Simplicity System S-100 plant for the Chicago location. The installation was made during the winter of 1943-1944 and operation of the new plant was begun in June, 1944.

The location of this plant on the North Branch of the Chicago River was originally selected in order that lake sand could be delivered at the yard by self-unloading vessels, but since 1941 there has been no maintenance dredging in this section of the river and as a result deep-draft vessels can no longer reach the plant. All materials, with the exception of filler dust, are now brought in by truck, and this has produced some traffic congestion in the yard.

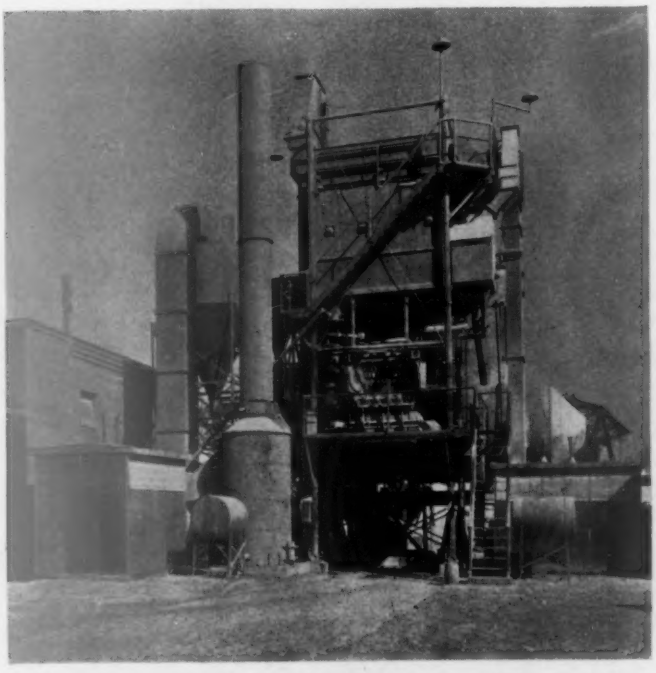
A Lorain 1¼-cubic-yard gasoline shovel is used for loading the aggregates from stock piles into the 75-ton 3-compartment steel bin beside the mixing plant. The materials flow through circular orifices in the bottom of the bin to a lower 12-ton hopper which has 3 compartments, one for 6 tons of coarse aggregate, and the other two for 6 tons of two sizes of sand. This double-hopper arrangement makes it possible with the minimum of effort and attention, to control the rate at which aggregates are fed to the mixing plant. Two apron feeders beneath the lower hopper convey the materials through adjustable rack-and-pinion gates to the bucket elevator which feeds the mixing plant.

The bagged filler dust, which constitutes from 6 to 8 per cent. of the mix under most specifications, is brought into the yard in railroad cars and stored in a temporary dust house adjacent to the mixing plant. The bags are dumped on a steel grate covering an underground screw conveyor by means of which the material is fed to a bucket elevator and discharged into a storage hopper at the mixing plant. From here it is screw-conveyed directly into the 300-pound batching hopper.

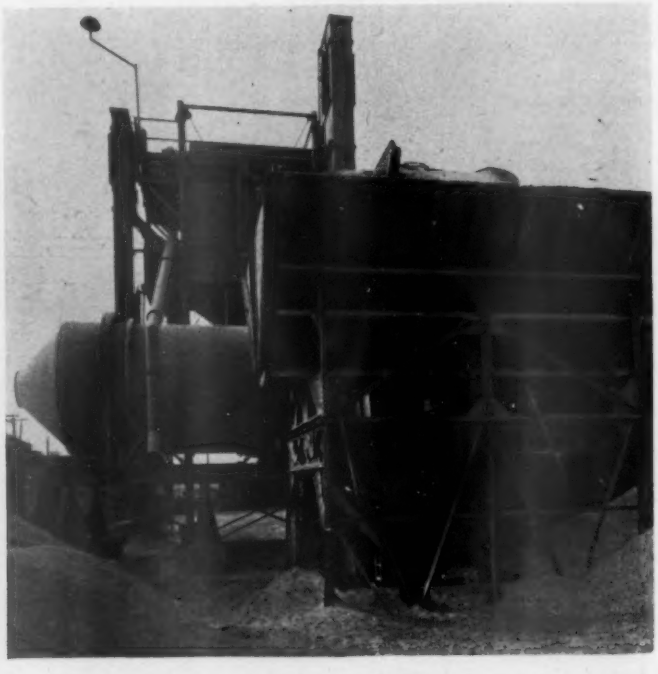
The aggregates are fed into the outer shell of the 10-foot diameter by 20-foot Simplicity double-shell drier and return through the inner shell to the feed end, traveling a total distance of 40 feet. This is the largest drier of this type supplied; the standard unit measures 8 feet by 15 feet. The drier is oil-fired by a Ray No. 11 Type TG burner which mechanically atomizes the fuel oil by means of a high-speed steam turbine.

A Clarage Size 33 exhaust fan draws 20,000 c.f.m. of air through the drier counter to the flow of the aggregates into a Simplicity cyclone dust collector from which the air is exhausted through a steel stack to the atmosphere. Water sprays

[1] PIT AND QUARRY, October, 1943, page 69. —ED.



General view of the new White Consolidated aggregate-bituminizing plant in Chicago.



Aggregates are fed into this double-shell drier from which the material is discharged to the screens.

The apron feeders under the lower of two aggregate hoppers.

located in the stack are used to knock down 90 per cent. of the 5 to 10 per cent. carryover from the dust collector, and the company has been well pleased by the absence of a dust nuisance or complaints. This is particularly significant in view of the plant's location, which is in a crowded industrial and residential section.

The material from the drier and the collected dust are discharged by the hot-stone bucket elevator onto a Symons 4- by 12-foot, double-deck fully-enclosed vibrating screen located above the 50-ton 4-compartment plant aggregate bin.

Steam rams open and close the bin gates which feed the three sizes of aggregate into a 6,000-pound weigh box equipped with a Kron 6,000-pound-capacity springless dial scale.

The bitumen is brought into the plant in tank cars and is steam-heated to a temperature of from 250 to 300 degrees F. before being pumped to the accumulator tank in the plant or into storage tanks. A steam-operated valve feeds the asphalt from the accumulator tank into the 600-pound-capacity steam-heated weigh bucket which is equipped with a Kron dial scale. The material is distributed uniformly throughout the mixer by means of a Kinney asphalt pump and spray nozzles.

The Simplicity 5,000-pound mixer, which has a complete electric timer, is of the 2-shaft pug-mill type with steam-operated sliding gates for discharging into trucks. It is steam-jacketed and has replaceable manganese-steel liner plates.

This fan draws hot air and dust from drier to dust collector.

The oil burner used for firing boiler with its motor-driven turbine.

An oil-fired 100-horsepower Kewanee boiler supplies all the steam used throughout the plant. A size 6, Type AP 12 Ray oil burner is used to eliminate the necessity of operating a booster boiler. The turbine on the burner is driven by a Westinghouse 1½-horsepower motor. This arrangement saves from 4 to 5 hours in starting up the plant.

The mixing plant equipment is driven by three UD-18, 80- to 100-horsepower International Diesel engines. The company selected Diesel engines in order to avoid the high stand-by and peak-period rates charged for electric current.

In the first season's operation of the new plant the company delivered 15,000 tons of material to the Chicago Park District and material for a number of resurfacing jobs for Cook County and the State of Illinois. On state work the company furnishes its own surfacing crews. The plant can turn out 125 tons per hour of bituminized aggregate, and, when the specifications do not require the addition of filler dust, an 8-man crew, including the foreman, is adequate. When the filler is being used, 2 or 3 men are required in the dust house.

BUY MORE BONDS

**Vermont** (*from page 71*)

about 150,000 tons and the material is reclaimed from it through one opening into the 80-foot long reclaiming tunnel. Gravity flow is used whenever possible but when necessary a shovel and bulldozer are used to reclaim material from dead storage.

A rotary feeder discharges the ore on the 24-inch by 250-foot reclaiming belt-conveyor which carries it into the plant. When the ore is wet, all of it is split to the three rotary driers which were described in a previous article. When it is dry, the ore goes over a grizzly with only the finest going through the driers. The dry ore is carried on a belt-conveyor to a Tyler screen in closed circuit with the 5½-foot Symons short-head cone crusher which was formerly the tertiary plant crusher. The minus-½-inch product is carried on another belt-conveyor — over a Merrick Weightometer which records the amount stored—to the two Nicholson 5,000-ton concrete storage silos. A parallel belt-conveyor carries rock from storage into the mill for processing over a second Merrick Weightometer. There have been no major changes from this point on in the flow since the plant was last described.

View of quarry, which is now about 200 feet from the primary crusher.

Most of the asbestos fiber produced is used by the Ruberoid Company in the manufacture of asbestos-cement shingles, siding, roofing, wall board, etc.

The officers of Vermont Asbestos Mines are: Herbert Abraham, president; S. P. Moffit, vice-president; K. H. Behre, secretary; G. F. Bahrs, treasurer. C. T. Limerick is general superintendent and chief engineer.

# National Lime Association Directors Hear Research Results, Elect Officers

another ON THE SPOT report

TWENTY representatives of lime manufacturing companies which are members of the National Lime Association gathered at the Homestead in Hot Springs, Virginia, May 17 to 19 for a meeting of the organization's board of directors. They discussed technical investigations being carried on for the association, market opportunities, basing point pricing, and other subjects of interest to lime manufacturers.

### Tests and Standards

Dr. G. J. Fink, research fellow at the National Bureau of Standards, presented a report of the activities and accomplishments of the association's fellowship research at the bureau during the last year. The work has dealt with workability tests of lime mortars and the development of a special machine for making them. The problem of a satisfactory method for determining and adjusting the consistency of mortars has been studied systematically with particular emphasis on the penetration test, as recommended by the Mortar Research Advisory Subcommittee. Another subject of investigation is the linear expansion of cement-lime mixtures when autoclaved under various conditions, and about 60 hydrated limes have been subjected to tests and some 30 more are under test.

Dr. Fink reported that Emil Frattner of the association has investigated the possibilities of determining the fineness of limes and the residues on the No. 30 and No. 200 sieves by a method similar to that used for Portland cement. It is felt that the present A.S.T.M. and Federal standard methods are unsatisfactory, particularly when applied to the new highly hydrated dolomitic limes which frequently contain aggregates difficult to disperse.

Tests have also been made of the properties of all six of the then available dolomitic masonry hydrates in which most of the magnesia had been hydrated. Their chemical composition, in hydrated oxide content, water retentivity and plasticity were carefully studied. The tests included cement-lime mixtures tested as masonry cements and cement-lime mortars.

Dr. Fink mentioned also the preparation of chapters on lime and on mortars for a book to be published by the American Technical Society and designed for use in secondary, trade and union schools. President S. Walter Stauffer expressed the opinion that this book will ultimately mean much to the lime industry.

### Research at M.I.T.

Professor Howard R. Staley, who is carrying on research work for the association at the Massachusetts Institute of Technology, reported on the work done during the past year at his institution's laboratory.

He referred at the outset to the disadvantages under which cement-lime mortars have been placed as compared with masonry cements because of the difference in the method of proportioning for testing, using 1:3 by volume with the former materials and 1:3 by weight with the latter. He spoke also of tests made of assemblages of quarry tile and of water retention.

He then described tests that had been made to evaluate some of the variables present in the autoclave test and reported on plaster research involving new combinations and mixtures, and on a study of the plasterers' reaction to lime mixes.

Fundamental research carried on during the year had to do with the surface area of limes, the effect of milling on surface area, calculating the mean diameter of the particles and sedimentation.

Professor Staley expressed the hope that the association might achieve a greater correlation of its research data, possibly through carrying on all its research at one place.

### Lime in Sewage Treatment

Dr. Willem Rudolfs, chief, Department of Water and Sewage Research at Rutgers University, reported progress on the study of the use of lime for the treatment of sewage and industrial wastes carried on under the National Lime Association Fellowship. His studies of lime in sewage treatment seemed to show that lime with the greatest solubility produces the best results and that slurries are more effective than dry lime applications. As texture, particle area, dispersability and crystalline structure affect solubility, the effectiveness of lime varies with different types of lime.

In the handling of sludge digester overflows at sewage-treatment plants most efficient clarification has been accomplished by the use of lime in solution with ferric chloride. For equal clarification and removal of oxygen-demanding materials lime in solution is lower in cost than combinations of coagulants and lime.

In treating industrial wastes consisting principally of mixtures of sulphuric, nitric and hydrochloric acids, calcium and magnesium hydrates, quicklimes, limestones, soda ash, caustic soda and combinations of them were used. A combination of dolomitic hydrate and soda ash was found better than lime, soda ash or caustic soda alone. Sludge formation in excessive quantities can be prevented by using the proper type of lime and dilution.

The speaker mentioned a new method for neutralizing wastes by means of an upflow limestone bed, tried on laboratory and pilot-plant scale, and several plants utilizing this method have been built. Essentially the plant consists of a tank filled with small-sized limestone particles —about 98 per cent. passing an 8-mesh screen and 99 per cent. retained on a 20-mesh screen—having the maximum possible surface area, the flow being passed upward at a velocity that would expand the bed or keep the lime particles in suspension.

Dr. Rudolfs said that the lime manufacturer's greatest field for the use of lime in the treatment of wastes is in the chemical industries, metals (pickling liquors), fruit and vegetable canneries, coal washing and mine acid, textiles, dyes, meat, dairy, laundry, tanning and paper industries. He mentioned also the pharmaceutical industry — vitamin, hormone and penicillin-production —which produces highly acid wastes containing much soluble material with high oxygen demand. He suggested study of these new wastes and the applicability of hydrated lime and limestone, and a combination of the studies on sewage and sludge treatment with those on industrial wastes.

At the afternoon session President Stauffer presented his report in which he referred to wage-rate sur-

veys, and further extension of the exemption of the lime industry from the provisions of the Renegotiation Act granted in March and covering all fiscal years ending between July 1, 1943, and June 30, 1945.

He told of the association's adoption of a program of research on agricultural lime to extend over a 5-year period and to study the value of calcium and magnesium in correcting soil acidity and as plant foods and their relation to other plant food elements. The program will be carried on at the New Jersey Agricultural Experiment Station, whose Dr. Firman E. Bear submitted a suggested program, and at four other state experiment stations.

### Legislation on Prices

Abram F. Myers, National Lime Association counsel, reviewed for those present the *Use of Basing Points Under the Clayton Act,* particularly as this practice has been affected by the decisions of the United States Supreme Court in the Corn Products Refining Company and the A. E. Staley Manufacturing Company cases decided April 23, 1945. He drew attention to the change in judicial attitude that has occurred since the enactment of the Robinson-Patman amendment to the Clayton Act by tracing the development of decisions from the United States Steel Corporation case involving the "Pittsburgh plus" pricing system down to those made in the Corn Products and Staley cases already mentioned. According to these latest decisions, said Mr. Myers, certain price practices appear to be illegal wherever they "may" affect competition adversely. Among these he mentioned:

(1) the use of the basing-point principle: (a) so as to yield to the seller a price f.o.b. his shipping plant higher than his current selling price f.o.b. plant to other buyers of products of like grade and quality, (b) so as to yield the seller an f.o.b. price lower than his current f.o.b. price to other such buyers (except that this lower price may be made in good faith to meet an equally low price of some competitor, and (c) so as to enable the seller to quote delivered prices based on f.o.b. shipping points other than the actual shipping points of the goods and to add transportation charges from those other shipping points, the resulting charges being discriminatory compared with current prices and shipping charges from the actual shipping point;

(2) The establishment of zone or district delivered prices where the applicable transportation charges vary as to destination in the zone or district, so that the seller discriminates in the net price yield f.o.b. the shipping point between different buyers of the same quality of goods; and

(3) (a) under the guise of "meeting competition," the making of a discriminatory delivered price to a given destination by using the established plant price plus the transportation cost of another seller who is not competing at that destination; or (b) discriminating by watching the published delivered price on a product not competitive as to quality.

The speaker also mentioned as apparently illegal practices special contracts favoring special customers, unless the discrimination is justified by "differences in the cost of manufacture, sale, or delivery resulting from the differing methods or quantities"; discriminatory discounts, or terms of conditions of sale to selected buyers of the same quality of goods, unless the discrimination can be justified in the same way.

Mr. Myers said that the decisions discussed do not seem to affect the publishing of prices and terms and conditions of sale (provided there is no collusion or understanding with any competitor in their determination or publication), or the practice of matching in good faith the delivered price of a competitor on a product actually competitive, even though it results in a discriminatory price realization f.o.b. the shipping plant.

The speaker said that the Supreme Court frowns on "phantom" competition as well as "phantom" freight, and that "good faith" is important in all deviations which are designed to meet competition. In answer to questions, Mr. Myers said that the buyer is entitled to whatever advantage arises from his proximity to the point of production, that is lower freight rates.

The question of how best to circulate the association's specifications as well as their content were subjects of discussion. The association has adopted specifications for masons' hydrated lime dealing with the characteristics of the material and methods of testing. They cover both the Type N and the Type S limes for use as a constituent of mortars, in stucco work, base-coat work in plastering, and as an admixture in concrete. Mortars for use in unit masonry are the subject of other specifications.

### Friday Morning Session

At the Friday morning session Dr. Fink presented, in response to the board of directors' request, a plan for utilizing four other laboratories besides that of the Massachusetts Institute of Technology to determine the feasibility of specifying the same fixed amount of water in making strength test specimens from mortars with the same proportions of lime to cement.

President Stauffer then mentioned three efforts to provide a plan for a national agricultural program: that of the War Food Administration, that of the National Planning Commission, and that promoted by the farm groups. The last named plan is covered by the Hill bill introduced in the House of Representatives, which provides that if industry does not provide enough soil-treatment materials, the government will by building the necessary lime and fertilizer plants. The National Planning Commission's program is more conservative and favors private enterprise.

Kenneth Hankinson of the Quality Lime Institute drew attention to bill S 882 introduced in the Senate and its counterpart, HR 2922, introduced in the House of Representatives, and particularly to the requirement that each state should set up at least 75 demonstration farms in each county. It provides also for government operation of fertilizer plants.

During the discussion it was brought out that where there are shortages of lime of the required kinds and in the required amounts the principal cause is the lack of man power. The Selective Service System has drawn heavily on lime-plant personnel, and these men can not be replaced at prevailing lime-plant wages in competition with war and other high-wage-rate plants. There is good reason for believing that the War Manpower Commission may be told by other government agencies that lime is a critical material.

Roma M. Turpen, assistant secretary of the association, reported the completion of 1944 without a lost-time accident by the staffs of nine lime-manufacturing plants to which certificates have been awarded in the association's safety competition for that year. They are the Genoa and Falls Village plants of the United States Gypsum Company, the York plant of the National Gypsum Company, the Martinsburg plant of the North American Cement Corporation, the Asbury plant of the Standard Lime Stone Company, the Thomasville plant of the J. E. Baker Company, the Thornton plant of the Marblehead Lime Company, the Houston plant of the Nyotex Chemicals, Inc., and

the Salem plant of the Salem Lime & Stone Company.

During 1944 there was an increase in the number of man-hours worked, yet the frequency and severity rates decreased—the former to 37.374 from 43.806 in 1943, and the latter to 4.216 from 5.076 in 1943. Fifty-one plants were enrolled in the contest, but two plants ceased lime manufacture in 1944. Nine plants which had participated in the 1943 contest failed to enroll for 1944 because of lack of man power or cessation of operations. Forty-six are enrolled for the 1945 competition, which is the eleventh annual contest.

President Stauffer proposed consideration of a plan providing, within the structure of the National Lime Association, for national divisional organizations based on products—such as finishing lime, masons' lime, agricultural lime and chemical lime—rather than on geographical areas. Each division would have its own executive committee and individual autonomy subject to the overriding power of the national organization through the latter's board of directors.

Mr. Stauffer also thought, as the result of his recent attendance by invitation at a meeting in Canada, that the association might well consider the setting up of a Canadian division within the national association.

Chairman K. L. Hammond appointed a committee, consisting of Amos B. Miner (chairman), Reed C. Bye, Russell Rarey, C. C. Loomis and W. W. Sprague and President Stauffer and Mr. Hammond as ex-officio members, to study the possibilities of divisional organization.

Interest was shown also in the idea of holding meetings for operating men—one at the annual meeting of the board (or at the convention when such meetings are again permissible) and one near the middle of the year for the purpose of promoting open discussion of problems common to the operating branches of lime-manufacturing companies. The board approved a motion to adopt such a plan.

Through a suitable resolution sorrow was expressed for the death of four lime manufacturers during 1944:

Herbert W. Dean, former president of the Cheshire Lime Manufacturing Company, Cheshire, Massachusetts.

William J. Stewart, retired vice-president of the Marblehead Lime Company, Chicago.

Charles H. Kammann, president of the Ste. Genevieve Lime Company, St. Louis.

Judge Bernard Mason, president of the Ripplemead Lime Company, Ripplemead, Virginia.

### Election of Officers

The association's newly-elected officers for the fiscal year 1945-1946 are:

K. L. Hammond (chairman, board of directors), Keystone Lime Works, Inc., Keystone, Alabama.

S. Walter Stauffer (president and general manager), National Lime Association, Washington.

James H. McNamara (treasurer), Eagle Rock Lime Company, Eagle Rock, Virginia.

Roma M. Turpen (assistant secretary), National Lime Association, Washington.

The membership of the board of directors remains the same except for the election of Russell Rarey (Marble Cliff Quarries Company, Columbus, Ohio) in District 5-B and of T. R. Ellerback (Utah Lime & Stone Company, Salt Lake City, Utah) in District 15.

The following members of the association and its staff, speakers and guests were in attendance:

| | | |
|---|---|---|
| Barrick (Claude) | S. W. Barrick & Sons | Woodsboro, Ind. |
| Best (John C.) | National Gypsum Company | Buffalo, Ind. |
| Brigstocke (H. D.) | Thomasville Stone & Lime Company | Dover, Pa. |
| Bye (Reed C.) | Warner Company | Philadelphia, Pa. |
| Collins (F. J.) | Kelley Island Lime & Transport Co. | Cleveland, O. |
| Corson (Bolton L.) | G. & W. H. Corson, Inc. | Plymouth Meeting, Pa. |
| Dickey (Ralph L.) | Kelley Island Lime & Transport Co. | Cleveland, O. |
| Dunaway (J. A.) | Peery Lime Co., Inc. | North Tazewell, Va. |
| Fink (Dr. G. J.) | National Bureau of Standards | Washington, D. C. |
| Ford (Burton A.) | Thomas Phillips Paper Co. | Akron, Ohio |
| Greeves (Russell G.) | Kelley Island Lime & Transport Co. | Cleveland, O. |
| Grove, Jr. (Edward D.) | M. J. Grove Lime Co. | Lime Kiln, Md. |
| Gruber (John F.) | St. Regis Paper Co., Bag Division | Baltimore, Md. |
| Hamme (Walter S.) | National Gypsum Co. | Buffalo, N. Y. |
| Hammond (K. L.) | Keystone Lime Works, Inc. | Keystone, Ala. |
| Hankinson (Kenneth) | Quality Lime Institute | Philadelphia, Pa. |
| Lee (Franklin S.) | Quality Lime Institute | Philadelphia, Pa. |
| Loomis (C. C.) | New England Lime Co. | Adams, Mass. |
| Mack (A. B.) | Kelley Island Lime & Transport Co. | Cleveland, O. |
| Miner (Amos B.) | National Gypsum Co. | Buffalo, N. Y. |
| Myers (Abram F.) | | Washington, D. C. |
| Nordberg (Bror) | *Rock Products* | Chicago, Ill. |
| Phillips (Stanley A.) | *Pit and Quarry* | Chicago, Ill. |
| Rarey (Russell) | Marble Cliff Quarries Company | Columbus, O. |
| Rockwood (Nathan C.) | *Rock Products* | Chicago, Ill. |
| Rudolfs (Dr. Willem) | Rutgers University | Rutherford, N. J. |
| Sprague (W. W.) | National Mortar & Supply Co. | Pittsburgh, Pa. |
| Staley (Prof. Howard R.) | Massachusetts Institute of Technology | Boston, Mass. |
| Stauffer (S. Walter) | National Lime Association | Washington, D. C. |
| Turpen (Mrs. Roma M.) | National Lime Association | Washington, D. C. |
| Williams (E. A.) | H. E. Millard | Annville, Pa. |
| Williams (E. I.) | Riverton Lime & Stone Co. | Riverton, Va. |
| Wilson (William A.) | *Pit and Quarry* | New York, N. Y. |
| Wing (Wallace E.) | Marblehead Lime Co. | Chicago, Ill. |
| Witmer (Fred) | Ohio Hydrate & Supply Co. | Woodville, O. |

## California Cement Prices Lowest in United States

Bureau of Mines statistics showed that the average cement price in California, f.o.b. mill—$1.51 in January—was the lowest for any area in the United States. (The December price had been $1.45.) Although an O. P. A. ruling had permitted a rise at the year's end, the upward trend was offset by Permanente's cut to a $1.45 basis, which still obtains. California mills were reported running at about 60 per cent of capacity.

Pacific Northwest average mill cement value jumped from $2.03 in December to $2.13 in January, while the national average rose from $1.61 in December to $1.64 in January.

## Sharp & Fellows Co. Sells Ballast to Santa Fe

A new quarry and plant have been opened near Newberry, California, by the Sharp & Fellows Contracting Company to supply ballast to the Santa Fe Railway's Arizona division. A large proportion of the material is crushed and shipments are expected to reach 20 or 30 carloads daily.

An industry listed as newly established in Pendleton, Oregon, is the Pendleton Sand & Gravel Company, operated by Norris H. Looney, Gar Powers and Ray Colgan. The firm leased a gravel bar near Pendleton and work began in April.

# Texas Firm Gains Flexible Production By Use of Semi-Portable Gravel Plants

General view of one washing and screening plant of the Edwin Neeley Sand & Gravel Company, Waco, Texas.

another ON THE SPOT report

THE man-power shortage which has bedeviled all producers of civilian goods and materials has placed less of a burden on some producers than on others. The operation about to be described is a case in which the

Fifty-horsepower gas engine which drives the larger plant.

owner was able to shift his method of operation and continue producing with a reduced labor force.

The Edwin Neeley Sand & Gravel Company of Waco, Texas, obtains the desirable flexibility by operating two separate portable washing and screening plants of widely differing capacities. The larger of the two, a Pioneer plant with a rated capacity of 100 cubic yards per hour, requires

**By WILLIAM M. AVERY**

4 trucks hauling to it for efficient operation, and a complete operating crew comprises 10 men. When the men are not available, or when the demand is slack, the operation is merely shifted to the smaller Cedarapids plant which, although rated at 25 cubic yards per hour, can handle up to 40 cubic yards per and requires only 5 men for its operation.

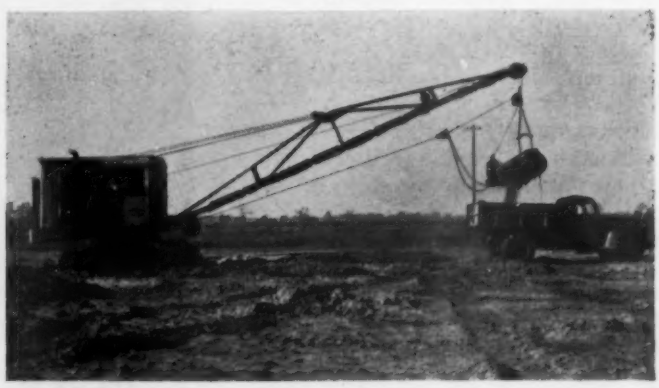
Operations at the present location were started about 4 years ago, but the company has worked in and around the city of Waco for many years. The 48-acre deposit has from 5 to 8 feet of overburden and has been worked to a depth of 17 feet below grade. AP&H No. 600 gasoline-powered drag line with a ⅞-cubic-yard bucket is used for both stripping and recovery. Ford trucks with Heil 4 cubic-yard bodies are used for hauling and delivering, for there is no railway service available. About 65 per cent. of the company's total production is sold as pit-run gravel which averages approximately 45 per cent. gravel. For the first 9 months prior to setting up the Cedarapids plant nothing but pit-run gravel was produced.

The trucks haul to a steel hopper

Water is supplied to the plant by this 4-inch, 40,000-g.p.h. centrifugal pump.

set over an 18-inch by 75-foot belt conveyor which feeds the Cedarapids washing and screening plant. The 36-inch diameter by 12-foot rotary screen has 3 sections—1½-inch mesh for gravel, ⅝-inch mesh for pea gravel, and No. 8 for sand. There is a 10-cubic-yard hopper under each section of the screen. The water is supplied by a 4-inch Rex Speed Prime 40,000 g.p.h. centrifugal pump, and the plant is powered by a 25-horsepower Waukesha

(*Continued on page* 79)



Left: Bucket loader loading sand on 4-cubic-yard truck. Right: The dragline excavator loading a 4-cubic-yard dump truck.

# High Proportion of Fines for Agstone Produced at Indiana Crushing Plant

General view of the Pipe Creek plant. Note the 1,000-ton surge pile with the conical housing at the peak. Machine shop is at the right.

another ON THE SPOT report

THE Pipe Creek Stone Company of Sweetser, Indiana, is producing at present about 350 tons per day of by-product agricultural limestone out of a total crushed-stone output of 800 to 900 tons per day. While this production rate is not in itself remarkable, it assumes more than ordinary significance by virtue of its being attained without the employment of special pulverizing or crushing equipment designed to increase the yield of extreme fines. Under normal operating conditions crushed stone producers expect to obtain as a by-product of their regular production of crushed stone from 10 to 12 per cent. of material which can meet the specifications covering agricultural limestone; if a much higher yield of fines is desired without the loss of operating economy, it is generally necessary to install additional equipment.

The plant was built in 1933 to crush 5,000 cubic yards of ditch-stone, and upon the completion of this contract in the fall of 1934 open-pit operations were commenced at a location about ½ mile from the crusher. The deposit consists of thin, partially disintegrated slabs, ranging in depth from 12 to 22 feet and covered by very little overburden. Trojan powder is used for blasting and the drilling is done with 2 Sanderson Cyclone well drills.

Two Lorain gasoline shovels (1¼- and 1½-cubic-yard) load the stone into dump trucks which haul it to the 7- by 15-foot plate-type feeder ahead of the Allis-Chalmers 16-inch Superior-McCully primary crusher. Since the feed consists almost entirely of thin slabs of stone, a special wide-corrugation head is used to facilitate splitting. A 30-inch by 150-foot inclined belt-conveyor feeds the crushed material to a 50-foot high surge pile in which about 1,000 tons of stone may be stored. The housing over the surge pile is supported on a pipe framework which

**By WILLIAM M. AVERY**

rests on the ground, although the appearance of the structure (as shown by one of the illustrations) would suggest that it "floats" on the pile.

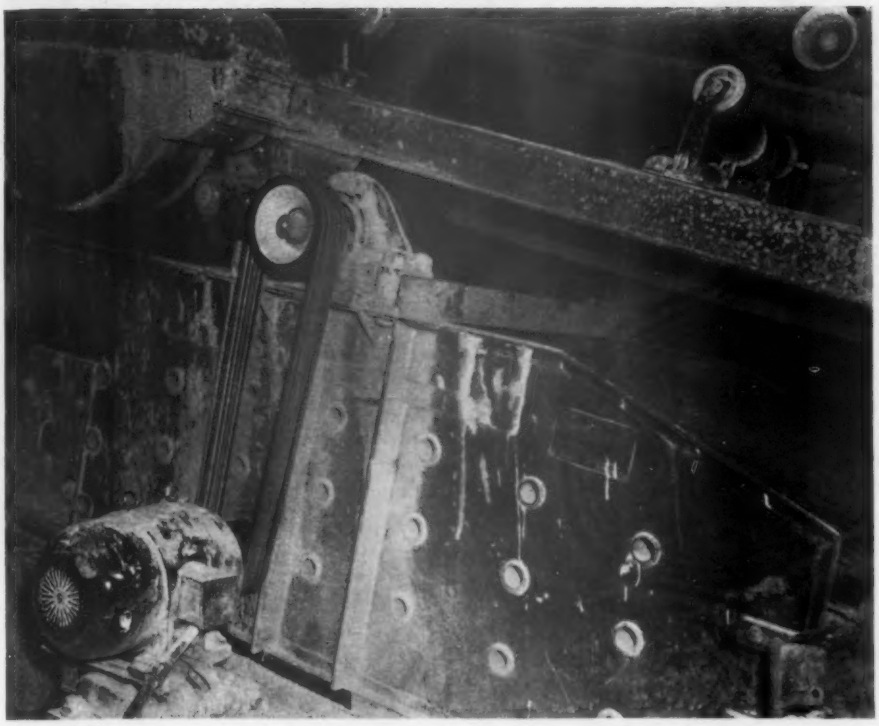
A variable-speed feeder at the base of the surge pile feeds a 24-inch by 150-foot inclined belt-conveyor which discharges on a 3-deck, 4- by 8-foot Deister Plat-O vibrating screen. Minus-3½-plus-2-inch, and minus-2-plus-1¼-inch stone are chuted directly into bins, while the minus-1¼-inch material drops on a 2-deck, 4- by 8-foot Deister Plat-O vibrating screen. Here the agstone is scalped to ½ or ¾ inch, depending on the product being made, and chuted into a 100-ton steel bin which feeds a 40- by 22-inch Pioneer roll crusher. The minus ½- or ¾-inch stone is washed and sized on a third Deister Plat-O screen (3-deck, 4- by 6-foot).

The 40- by 22-inch roll crusher.

The bins in which the plus-2-inch and plus-1¼-inch stone is stored are so arranged that they overflow into a rejection bin from which the material may be drawn into a Type S Number 37½ Kennedy-Van Saun crusher for further reduction if necessary.

In addition to road stone and agricultural limestone, the company sells both fluxing stone and a considerable quantity of shale. The latter material is shipped to the National Gypsum Company's rock-wool plants at Anderson, Indiana, and Dubuque, Iowa.

The 1¼-yard gasoline shovel working at the quarry face.



One of the 3 vibrating screens in the plant. This 3-deck, 4- by 8-foot unit sizes stone delivered from the surge pile by the 24-inch by 150-foot conveyor just visible at top of picture.

The shale underlies the limestone deposit and is normally worked only during periods of bad weather. The material is passed through the primary crusher and conveyed to the top of the surge pile where it drops on a 24-inch by 75-foot belt-conveyor extending out over the quarry floor. A tunnel built against the face of the quarry has loading chutes and gates through which the shale may be drawn from the stock pile into trucks for shipment. This arrangement makes it possible to load out from the center of the stock pile, facilitating the rejection of the fines in the crusher-run shale.

All the hauling of material from the plant is done by hired trucks, and in the case of agricultural limestone the truckers are permitted to bid on both the stone and the delivery. Loading into trucks from stock piles in the yard of the plant is done with a Haiss loader which is mounted on a Chevrolet truck. The company operates a well-equipped machine shop in which practically all necessary repair and maintenance work can be handled.

F. W. (Jake) Irving is manager of the Pipe Creek Stone Company and a partner in the business.

Type "S" reduction crusher on left, and the 16-inch primary rotary crusher at the right.

**Texas Firm** *(from page 77)*

The pit-run gravel screens out to about 40 per cent. of the minus —1½-inch material, 15 per cent. pea gravel and 45 per cent. sand. As the figures indicate, there is almost no oversize; the small amount produced (not over 2 cubic yards per day) is readily sold for use in the construction of septic tanks.

The Pioneer plant was purchased about two years ago for a pit at Gatesville, Texas, about 50 miles west of Waco. It was operated there for about a year and then moved to the present location. The 48-inch diameter by 20-foot rotary screen has 4 sections for producing sand and three sizes of gravel. There are four 10-cubic-yard bins below the screens from which trucks may be loaded. A 50-horsepower Waukesha gasoline engine drives the plant, and a 6-inch Le Roy centrifugal pump furnishes water.

Since all the stockpiling at this location must be done with trucks, the company feels that it is particularly advantageous to have two entirely independent plants, by means of which production may be varied in accordance with the demand without impairing operating efficiency. Only a small fraction of the total tonnage marketed is rehandled from stock piles, and this is accomplished by the use of a Barber-Greene 82-A bucket loader.

Before the war this company's fleet of 10 Ford trucks made deliveries within a radius of 50 miles but the shortage of help and the need to conserve tires and fuel now limits hauls to around 20 miles. Last year the company filled a contract for around 30,000 cubic yards of material used in the construction of a veterans hospital in Waco.

## Farmers Establish Depots For Limestone Storage

Farmers of Piatt County, Missouri, in order to carry out their plan to spread three times as much limestone in 1945 as in any previous year, have established 20 agstone depots throughout the county. The Piatt County Farm Bureau has contracted for 150,000 tons of limestone, a portable crane for unloading cars and tractor scoops for loading trucks. The bureau service provides agstone to the farmers at any time and in any quantities desired.

## Seattle Firm Leases Pit On Puget Sound Island

The Clinker Sand & Gravel Company of Seattle announced recently that it had leased a gravel pit on Hat Island in Puget Sound from the Hat Island Sand & Gravel Company. The new lease-holders plan to remodel facilities at the 265-acre site, since operations have been discontinued for several years.

The Pacific Portland Cement Company reports that improvements and additions to plants during 1944 amounted to $270,000, although net profits for the year fell from $412,905 in 1943 to $191,074.

Among newly incorporated Illinois firms is the Aetna-Sigler Sand Company, 11 South La Salle Street, Chicago. Incorporators are H. Ollie Sigler, A. Anderson and R. G. Raysa.

# A Quarter Century of Progress In the American Lime Industry

IN THE March 15 issue of *Limeographs,* published by the National Lime Association, reference is made to the progress of the lime industry over the past 25 years. In the words of a famous presidential candidate who once said, "Let's take a look at the record," the editorial sets forth the increased production, improved manufacturing technique, and lower costs and prices in the following words.

"In 1919, according to Bureau of Mines reports, 539 plants were operating in the industry with a total annual production of 3,330,347 tons of lime. In 1943, less than half this number of plants, 245 to be exact, produced 5,319,890 tons. During this period the rotary kiln was introduced and today accounts for a substantial percentage of lime production. Shaft kiln capacities have been increased three and four times and the quality of their product greatly improved. Fuel ratios have been raised from two and one-half tons of lime per ton of coal to as high as five to one. Man-hours per ton have been greatly reduced. Average prices have been lowered from $8.84 per ton to $7.44.

"A new process of hydration has been perfected whereby less than 8 per cent. of the combined calcium and magnesium oxides remain unhydrated. This so-called pressure process has resulted in a greatly improved product of high immediate plasticity and sand-carrying capacity. In a recent investigation at the National Bureau of Standards of the commercial brands of this new type hydrated lime, great uniformity was found in their properties. In fact, this development gives to the industry a new product, standard in quality, unusual in properties and having wide application in the chemical and building industries. A new and higher minimum standard of quality for all hydrated lime has been adopted by the industry and has been submitted to the Federal Specification Committee and the American Society for Testing Materials with the request that it be adopted by them as standard. In 1919, the average specification for masonry mortar was 1 part cement, .15 part lime, and 3 parts sand by volume. In 1945, governmental agencies, architects and others interested in better masonry construction are accepting the industry's recommendations of 1 part cement, 2 parts lime, and not more than 9 parts sand. Industry-financed research at the Massachusetts Institute of Technology and the National Bureau of Standards developed the knowledge responsible for the use of this high lime mortar and its contribution to watertight masonry.

"In 1919 only 75,448 tons of lime were used for the treatment of water. In 1943 this use required 395,830 tons, and had become the third-largest lime-consuming market in the United States. According to the Bureau of Mines report, this tonnage is approximately equal to the output of two-thirds (26) of all the plants in the group, producing from 10,000 to 25,000 tons per year. The industry's educational bulletin, *Water Supply and Treatment,* was published during this period and is now in its fifth edition. It is in the hands of nearly every water works engineer and industrial engineer in the country and is used as a textbook in many universities and colleges. This is one chemical use where the industry has led in developing the knowledge of the art. Through an industry fellowship at Rutgers University, new knowledge was gained in the treatment of sewage and trade wastes.

"Many other illustrations of the initiative and progress of the industry could be mentioned. A lime manufacturer was the first successfully to extract magnesium metal from dolomitic lime, and another has produced commercially pure $CO_2$ from lime kiln gases. Others have led in the production of rock wool. The lime industry has not been asleep for twenty-five years. Through research and educational literature it has advanced the knowledge of the use of lime in agriculture, in construction and in the chemical processes. It has improved production methods, lowered costs and raised the quality of its products. It has assumed its full responsibilities in a free economy, both in peace and in war."

## Consider Paligorskite For Specialized Uses

Only a museum curiosity in the past, paligorskite—a type of asbestos usually called "mountain leather"—has characteristics that may adapt it to industrial uses, the Bureau of Mines has disclosed after investigating a deposit of this unusual mineral found on an Alaskan island.

A report has been issued by the bureau to acquaint manufacturers, particularly those specializing in filtering, sound-proofing, and shock-absorbing materials, with the existence of the undeveloped deposit and with some of the properties of the mineral.

The deposit was discovered by Joe Ibach on Lemesurier Island, near the entrance to Glacier Bay, in southeastern Alaska, according to the report prepared by technicians at the Bureau's Rolla, Missouri, experiment station, where samples were examined.

When dried, the paligorskite is light in weight and tough; it resembles buckskin, and tears somewhat like heavy cardboard, the report said. Upon wetting, it absorbs considerable water, swells and becomes soft, can be torn easily, resembles paper pulp, and is slimy to touch. When wet, it probably could be readily converted to a pulp in conventional paper-mill beaters and formed into innumerable lightweight, acid- and fire-proof products.

Any wide use of the material, either in a rough granulated or in a processed form, would depend upon establishing the existence of extensive reserves, the report said, but specialized uses might be considered on the basis of present disclosures.

## Claim 14-Year Record Run For Crushing Plant Belt

An unusual record of nearly 14 years of unbroken service in driving a generator in the stone crushing plant of Leroy Lime & Crushed Stone Company, Leroy, New York, during which the rubber belt has traveled an estimated 1,200 miles, is reported by the B. F. Goodrich company, Akron, Ohio. The generator runs the first primary crusher in the stone quarry pit, two incline conveyors out of the pit and all the screens in the plant.

Installed in March, 1931, and made endless on the job, the 105-foot long belt has not changed position since it was "broken in," although it has had to be run tight. It is treated occasionally with belt dressing.

Operating nine hours daily, six days a week, seven months annually, the drive speed is 4600 f.p.m. or 52 miles an hour.

# PERSONAL MENTION

R. G. L. Harstone

R. G. L. Harstone was recently elected president of Queenston Quarries, Limited, Hamilton, Ontario. Other officers chosen were A. Michie, vice-president and general manager; D. E. Steele, secretary; C. H. Doolittle, treasurer. Mr. Harstone, Mr. Doolittle, Mr. Michie, R. R. Evans, H. P. Frid and D. H. Henderson were appointed directors.

Rocert B. Soldini, for 22 years associated with the building-material industry in southern California, recently became district sales manager of the Los Angeles office of the Pacific Portland Cement Company. Mr. Soldini will direct the company's sales activities in southern California, Arizona and Nevada.

Mrs. George Skochdopole, wife of George Skochdopole, manager of the Consolidated Rock Products Company distributing plant at Whittier, California, recently received a $330 award from the Consolidated Vultee Aircraft Corporation at Downey, California. Mrs. Skochdopole, a Vultee employee, designed a device for lathes which combines three operations and saves an estimated 6,577 man-hours annually.

Lt. Bendy

Lt. W. R. Bendy, formerly a cement engineer at Claverack, New York, of the Air Transport Command's ferrying division, recently was awarded the Distinguished Flying Cross, with clusters, for flying the unpredictable "hump route" between India and China. While in that theatre of operations, Lieutenant Bendy completed 91 round trips. He returned to this country in October, 1944. Lieutenant Bendy has accumulated more than 2,200 flying hours and is still carrying on as first pilot on a regular military Air Transport run. He intends to return to his former profession after the war.

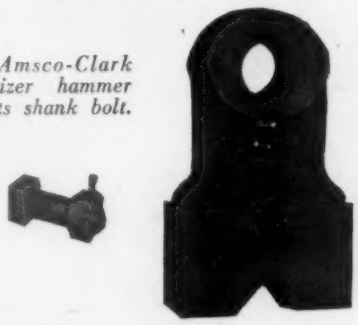
Edwin A. Russell, former director and sales manager of the Philadelphia Quartz Company, was recently appointed vice-president in charge of sales. Mr. Russell now will have full supervision of the firm's domestic sales.

W. B. Sippey has been appointed sales manager of the Columbia Cement Division (Zanesville) of the Pittsburgh Plate Glass Company. Mr. Sippey began his career with the Pittsburgh Plate Glass Company 28 years ago and has been associated with the Columbia Cement Divi-


# Shank Bolt of This Pulverizer Hammer *Takes No Operating Stress*

The bolt which holds the assembly together could be a weak point in the design of a multiple-part pulverizer hammer. If subjected to operating stresses, the bolt would sooner or later fail, loosening the shanks and releasing the hammer head, with resultant damage to the machine and time lost for replacement.

*S-14 Amsco-Clark pulverizer hammer and its shank bolt.*



This possibility has been obviated in the design of the Amsco-Clark renewable tip pulverizer hammer, the assembly and bolt arrangement of which are shown in Fig. 5. No stress is imposed on the shank bolt during operation. The two shank halves of tough manganese steel, the claws of which engage internal pockets in the head as pictured, take the operating stresses. Even if the bolt in this hammer should become loose or drop out, the assembly would hold together and the head could not fly off as long as the shank was on the supporting rotor pin.

Other important advantages are embodied in the Amsco-Clark design (patent pending.) Two-thirds of the hammer tip is actually used before it need be replaced. The time required for replacing tips is negligible, as the shanks are easily disengaged from a worn head. There is no guessing when to change heads because the shank-protecting metal is always visible.

Supplementing these design features, the incomparable durability of austenitic manganese steel in crushing service assures a pulverizer hammer equal to the heaviest service.

Price inquiries can be answered promptly if you will give the make of your pulverizer and the pattern number of your present hammers.

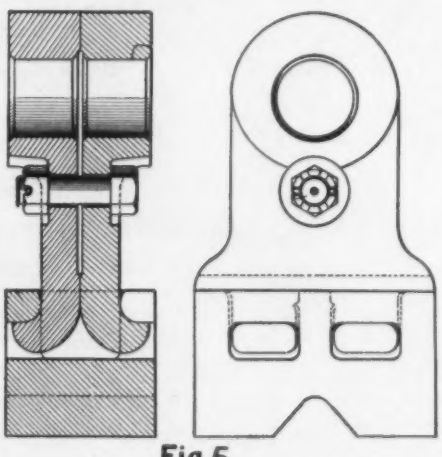


Fig 5

*Fig. 5 Detail of Amsco-Clark 3-part pulverizer hammer (patent applied for).*

**Bulletin 844D describes the application of manganese steel to all types of dredges.**

Amsco
AMERICAN MANGANESE STEEL DIVISION
Chicago Heights, Illinois

AMERICAN Brake Shoe COMPANY

FOUNDRIES AT CHICAGO HEIGHTS, ILL.; NEW CASTLE, DEL.; DENVER, COLO.; OAKLAND, CALIF.; LOS ANGELES, CALIF.; ST. LOUIS, MO.
OFFICES IN PRINCIPAL CITIES

sion for the past 19 years in the sales department.

Chester R. Steenberg has been appointed assistant sales manager. He joined the Columbia Cement Division in 1928 after having been previously associated with the West Penn Cement Company, the Universal Atlas Cement Company, and the South Western Cement Company.

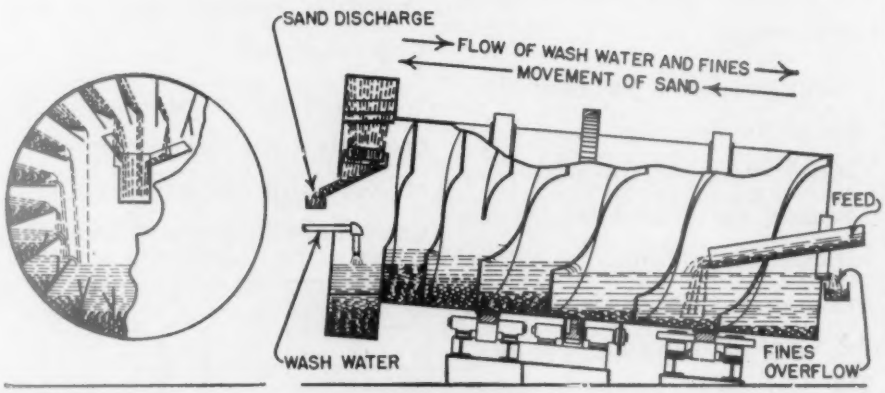
Sam C. Davis, treasurer of the Dayton Builders Supply Company, Dayton, Ohio, on March 1, became associated with Price Brothers Company of that city.

William J. Reardon, head of Reardon Industries, Cincinnati, Ohio, recently was elected to the board of directors of the New Orleans stockyards. Reardon Industries, with headquarters in Cincinnati and branches in New Orleans and Houston, produce insulation and building chemicals.

William W. Mein, Jr., president of the Calaveras Cement Company of San Francisco, recently was elected secretary-treasurer of the San Francisco section of the A.I.M.E.

Edward M. Heery of the Rockbestos Products Corporation, New Haven, Connecticut, was elected president of the Industrial Advertising and Marketing Council, Western New England Chapter, of the National Industrial Advertisers Association, at its recent annual meeting in Hartford, Connecticut. Mr. Heery succeeds Roger Lyman of Torrington, Connecticut.


# Hardinge
## Counter-Current
# Classifier




**For**

**Classifying and Sizing**
**Counter-Current Washing**
**Sand and Gravel Washing**

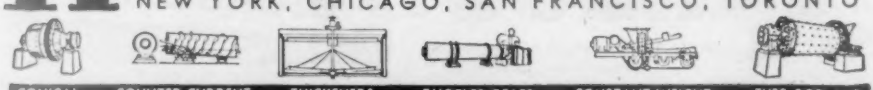
The Classifier is a slowly revolving drum on the inner surface of which is located a spiral flight attached to and revolving with the drum.

The material to be classified is fed at one end. The coarse particles settle out and are moved to the sand discharge end. The fines overflow at the opposite end.

Classifier will start under full load. Maintenance is low.

**Bulletin 39-A**

# HARDINGE
COMPANY, INCORPORATED - YORK, PENNSYLVANIA
NEW YORK, CHICAGO, SAN FRANCISCO, TORONTO



CONICAL MILLS | COUNTER CURRENT CLASSIFIERS | THICKENERS CLARIFIERS | RUGGLES-COLES DRYERS | CONSTANT WEIGHT FEEDERS | TUBE ROD AND BATCH MILLS


## OBITUARY

Dr. F. A. Harvey

Dr. Fred A. Harvey, 63, director of research for the Harbison-Walker Refractories Company, Pittsburgh, Pennsylvania, died April 27 at his home in Pittsburgh. A native of Kellogg, Iowa, Dr. Harvey was educated at Grinnell College, the University of California and the University of Goettingen, Germany. He joined Harbison-Walker Refractories Company in 1926, becoming research director in 1932.

Joseph Hock, 72, president of the Consumers Company of Chicago from 1937 to 1941, died at his home in Oak Park, Illinois, on April 22. Mr. Hock was president of the Wisconsin Lime & Cement Company previous to its merger with the Consumers Company in 1929.

Bruce Chenoweth, 69, formerly affiliated with the United States Gypsum Company, died in Atlanta, Georgia, on April 12. Mr. Chenoweth, a native of Decatur, Illinois, was sales supervisor for United States Gypsum at the time of his retirement in 1925.

H. B Cobban, 67, president of the Miami Rock Products Company, died May 3 at his home in Miami. Mr. Cobban also was president of the Northeast Oklahoma Railroad Company.

M. W. Kaufman

Monte W. Kaufman, son of J. F. Kaufman, who was for many years superintendent of the Arkansas Portland Cement Company, died January 1, 1945, of wounds received in action in Belgium. Private Kaufman received his training at Columbia Military Academy, Columbia, Tennessee, Stanford University, and the University of Oregon. He received the Purple Heart and citations, which were sent to his family.

William J. Young, 80, for many years active in the cement industry and formerly associated with the Standard Lime & Stone Company, Baltimore, Maryland, died recently in Wilmington, Delaware. After having held positions as consulting engineer with two railroads and the Alpha Portland Cement Company, Easton, Pennsylvania, he joined the staff of the Standard Lime & Stone Company in 1921 as head of the engineering department.

H. R. Case, 58, a director of the Batesville White Lime Company, Batesville, Arkansas, died recently at his home in Mountain View, Arkansas.

William L. Rayne, 55, port supervisor for the Pioneer Sand & Gravel Company of Seattle, Washington, died at his home on April 23. Mr. Rayne had been affiliated with the firm since 1929.

# Legal Decisions

By LEO T. PARKER

●

## Owner-Drivers

Modern courts hold that "owner-operators" of motor vehicles are not legal employees of the trucking company, so as to render the company liable for the payment of social-security or federal insurance contributions. For example, in *United States v. Mutual Trucking Company,* 141 Fed. Rep. (2d) 655, it was shown that a trucking company sued the United States to recover taxes alleged to have been erroneously and illegally collected under the Social Security Act, the Federal Unemployment Tax Act, and the Federal Insurance Contributions Act. The trucking company proved that it contracted with certain motor truck owners to do hauling under written contracts which contained the following clause: "It is to be clearly understood and agreed, and it is the intention of the parties that Second Party (truck owner) is a contractor only and is not the agent, employee or representative of First Party (company) for any purpose whatever." The contract also provided that the truck owners should assume full responsibility for the payment of all state and federal taxes for unemployment insurance, old-age pensions, or other social-security levies.

The government maintained that the company was the legal employer because in order to secure the license plates for the truck owners the president of the company made application to the Interstate Commerce Commission and expressly stated that such plates were to be displayed on motor vehicles operated by and under the control, supervision and responsibility of the company.

Notwithstanding these facts the higher court held in favor of the company and ordered the government to repay to the company all social-security and like taxes, amounting to $7,504, which it had paid to the government. This court said:

"In general, if an individual is subject to the control or direction of another merely as to the result to be accomplished by the work and not as to the means and methods for accomplishing the result, he is an independent contractor. An individual performing services as an independent contractor is not as to such services an employee. . . The use of the plates and the form of the application therefor is clearly explained by the necessity for complying with the regulations of the Interstate Commerce Commission."

## "Ceiling" Ordinance Valid

When and under what circumstances is a "ceiling" price state or city law valid? The answer, according to a modern higher court, is: When the state or city law does not contradict a Federal law or regulation. Another important point of law is that a federal law or regulation and the state or city law must be read together to determine the exact extent of liability.

For illustration, in *City of Cleveland Heights v. Simon,* 13 Ohio Supplement 1, a city enacted an ordinance stating that whoever sells a commodity, which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● Carver Pumps stay on the job at top capacity even after hundreds of hours of hard service because of their simplicity, trouble-proof design and superior construction. Simplicity means fewer parts to require attention. The recirculation tube is scientifically designed to provide fastest priming, peak efficiency, and correct amount of recirculation to keep priming chamber free from clogging deposits of silt, sand or dirt. Lifetime seal, special long-life impeller and renewable liner assure minimum of maintenance. Carver Certified Pumps are available in sizes from 1½" to 10" with capacities from 3,000 to 200,000 gallons per hour. For details, see your Carver distributor or write.

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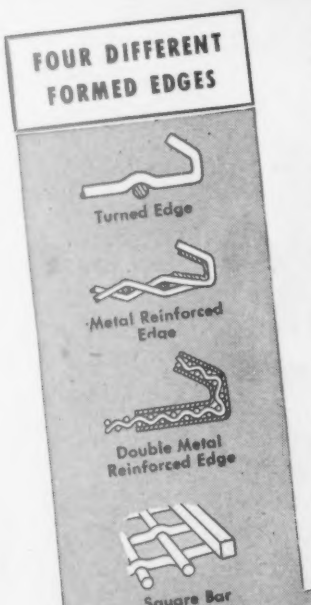
## Vibrator or Shaker Screens

## *Squared to the Job!*

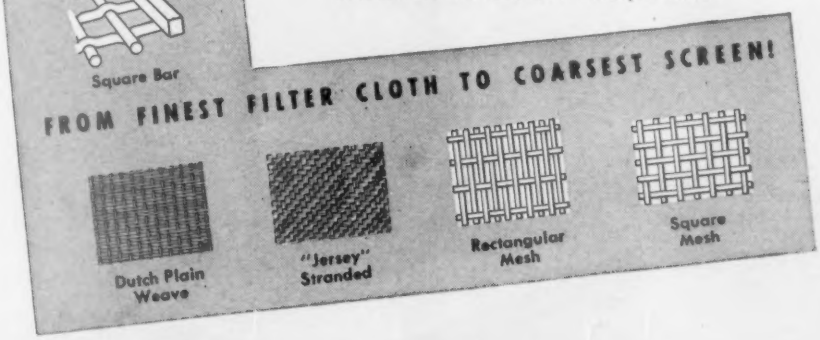



With a Roebling Vibrator or Shaker Screen you get not only ruggedness, wear-resistance, uninterrupted service . . . but also a screen that squares *exactly* with the sizing or cleaning job to be done.

Whether it's unique or run-of-the-mill . . . it's the right screen because we custom-build it to *your* own specifications . . . in any wire size from .001 to 1" rod . . . in a choice of edges . . . in any metal or weave.

Roebling experience, engineering and equipment has been developed by 104 years of wire-making. It's all at your service . . . to help solve your screening worries. Write today for information.

*Woven Wire Fabrics Division*
JOHN A. ROEBLING'S SONS COMPANY
TRENTON 2, NEW JERSEY
*Branches and Warehouses in Principal Cities*




# ROEBLING

JAR ROEBLING

*PACEMAKER IN WIRE PRODUCTS*

WIRE ROPE AND STRAND • FITTINGS • SLINGS • SUSPENSION BRIDGES AND CABLES
COLD ROLLED STRIP • HIGH AND LOW CARBON ACID AND BASIC OPEN HEARTH STEELS
AIRCORD, SWAGED TERMINALS AND ASSEMBLIES • AERIAL WIRE ROPE SYSTEMS • ROUND AND SHAPED WIRE • ELECTRICAL WIRES AND CABLES • WIRE CLOTH AND NETTING


is the subject of a ceiling price fixed by the authority of the United States of America, at a price in excess of such ceiling price shall be punished by a heavy fine. A seller violated this ordinance and was fined by the lower court. He appealed to the higher court on the contention that cities and states are powerless to pass valid laws with reference to "price control" for the reason that the federal government has preempted the field. However, the higher court promptly upheld the verdict of the lower court, saying:

"The legal authorities are uniform in holding that states are precluded from exercising a power only when the power over such subject is in express terms conferred exclusively upon the federal government, or where such grant of authority to the national government is attended by an express prohibition upon its exercise by the state or the exercise thereof by both would be clearly and necessarily contradictory and repugnant. . . In time of war and mindful of existing economic conditions, it can not be said that this ordinance is an unreasonable or improper exercise of legislative power."

### Employee May Sue for Damages

Generally speaking, an employee can not sue an employer for damages for an injury if the testimony proves that the employee made application for compensation under the state workmen's compensation act. In *Bagnel v. Springfield Sand & Tile Company,* 144 Fed. Rep. (2d) 65, a higher federal court held that a New York employee, injured while temporarily working in Massachusetts under an employment contract made in New York, was entitled under the Massachusetts law to sue the employer's subcontractors in the federal court. The testimony proved that the employee was injured in Massachusetts but his employer carried state workmen's compensation insurance only in New York. Therefore, the principal issue was whether the provisions of the workmen's compensation law of New York should be applied in a case where the employee who worked under a contract of employment made in New York was injured while on temporary assignment to work in Massachusetts. In holding that the employee was not entitled to compensation the higher court said that the employee could sue the employer for damages. Obviously, however, where an employee is protected by the state workmen's compensation act, he is entitled to compensation for all injuries sustained while working at his regular employment. On the other hand, modern higher courts consistently hold that if he sues his employer for damages he can not recover, unless he proves that the injury resulted from negligence of the employer.

### Verbal Contracts

Modern higher courts consistently hold that verbal contracts which can not be performed within one year are void because of the statute of frauds, a law effective in all states. However, according to a recent higher court decision a verbal contract verified by correspondence legally is a written contract, and such verbal contracts are equivalent to written contracts.

For example, in *Bertlee v. Illinois,* 52 N. E. (2d) 47, it was disclosed that two parties entered into a written contract for sale of merchandise. Later

the two parties entered into an oral agreement identical in consideration, promises, terms and provisions with the written agreement, but modified in that the term of the original contract was thenceforth to be two years from and after the date of the execution. Later the parties entered into other verbal agreements by which the quantity and quality of the merchandise were increased. However, in all instances certain letters and correspondence passed between the parties in which the various verbal agreements were mentioned and practically verified. When the seller breached the contract and refused to supply the merchandise the purchaser filed suit for damages amounting to $178,142. The seller defended the suit and contended that it was not liable on the grounds that the agreements were oral and could not be performed within one year and, therefore, were void under the statute of frauds. The higher court refused to agree with this contention, and explained that evidence of correspondence is sufficient to show substantially a written contract between the contracting parties whereby the contract was not within inhibition of the statute of frauds requiring agreements not to be performed within one year to be in writing.

## Questions and Answers

**[Mr. Parker will be glad to answer questions regarding legal problems of PIT AND QUARRY readers. Questions should be addressed to Leo T. Parker, Legal Editor, PIT AND QUARRY.—Ed.]**

*Legal Editor:* We have received a letter advising us that after April 15, 1945, all producers of crushed stone, sand and gravel will have to pay time and one-half for all time over 40 hours per week, regardless of whether we ship any material over a state line. We are enclosing the United States Department of Labor ruling and would appreciate your interpretation. We can think of no more important ruling than the one just released, if it is to mean that crushed stone, sand and gravel producers are now to be classified as interstate for strictly intrastate shipments. Then, too, the possibility of having to pay back pay, which is indicated, would be of serious consequence to many of us. We do not believe the act was ever intended to cover intrastate deliveries, but realize that what is intended and what is ruled or read into law may be two very different things.—W. F. C.

*Answer:* I have very carefully followed up every higher court decision on the Fair Labor Standards Act. These decisions tend toward including at present pursuits not previously thought to be within the scope of the act.

For example, in March, 1945, in *Cannon,* 155 Pac. (2d) 500, the higher court held that employees who work strictly intrastate but who service vehicles used to transport interstate shipments are covered by the Fair Labor Standards Act. Also, in *Amas,* 59 N. E. (2d) 389, reported February, 1945, the higher court held that companies which transport merchandise wholly within a state are subject to the act, if the merchandise is destined for interstate commerce. And employees who unload interstate shipments are within the act, according to *Stady,* 40 Atl. (2d) 694, also reported March, 1945, although such employees

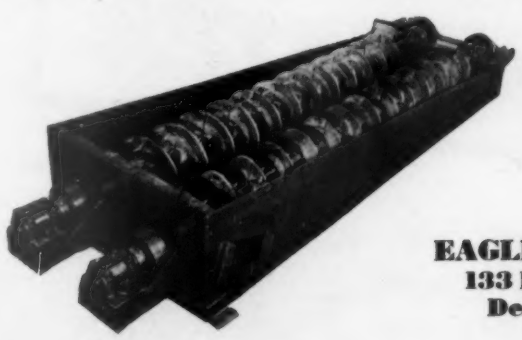
"Our Material Now Passes U.S. Government and State of Kansas Specifications"!

Before installing an Eagle Screw Washer, the Walters Sand Company, Manhattan, Kansas, experienced difficulty meeting specifications because of the presence of dirt and clay in the material they were shipping. An Eagle Washer solved the problem, as it has for so many operators, large and small.

They reported, *"After installation of the Eagle Washer, our sand and gravel had a cleaner texture. Prospective customers became actual customers. From our point of view, this washer is a complete success. We find the upkeep comparatively small, as there are no expensive parts to replace in this washer's construction."*

Interchangeable wear-resistant screw flights, Timken roller thrust bearings at the top and composition marine-type bearings at the bottom, and "rising current" wash water inlets are reasons why Eagles stand up under continuous service and do a thorough washing job.

The hundreds of Eagle Screw and Log Type Washers, Classifiers and Dehydrators in use by successful operators speak for themselves. Plan now for the postwar demand for clean sand and gravel—send for Catalog 44.



Let an Eagle "feather your nest!"

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EAGLE
*Specialized Sand and Gravel Equipment*
"SWINTEK" DREDGE LADDERS — SCREW WASHERS
LOG WASHERS — DEHYDRATORS — SAND TANKS
CLASSIFIERS — REVOLVING SCREENS
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perform no other work. Then there are other higher court cases which definitely hold that a truck driver in interstate commerce is within control of the Interstate Commerce Commission as a consequence of which such drivers are eliminated or exempted from the Fair Labor Standards Act.

On the other hand, take the cases of *Dize,* 144 Fed. (2d) 584; and *Fleming,* 125 Fed. (2d) 897, on which barrels, etc. were manufactured and sold to purchasers exclusively within the state. However, the higher court held that the employees who made them were within the Fair Labor Standards Act because the purchasers used some of the packages and barrels to ship merchandise interstate.

Then again the *Home Ice Company, Atlantic Company,* and other decisions hold that goods produced within a state and used later to carry on interstate commerce automatically place the intrastate employees within the scope of the act.

But, even beyond the above-mentioned decisions, in my opinion, is *Warren,* 316 U. S. 517. Here the Supreme Court of the United States held that employees of a contractor are subject to the Fair Labor Standards Act although such employees only drill oil wells and their employer, the contractor, performs this work for companies which later own and ship the oil, if it is found, in interstate commerce. In other words, the employer, the contractor, had no interest or ownership in either the wells, the oil, or the land.

*Legal Editor:* Recently we have had some legal difficulty on ceiling prices as established by the O.P.A. At public auction we purchased certain materials from state officials. The price we are willing to pay is above the ceiling price. The O.P.A. advised us not to make this deal. But according to a state law the state authorities can not legally make the sale except to the highest bidder. The question in our mind is: Shall we abide by this state law or the O.P.A.? —T. C. C.

*Answer:* A modern higher court has held that an O.P.A. regulation is void if it conflicts with state laws. For example, in *Soundview Company v. Taylor,* 150 Pac. (2d) 839, it was shown that a person was the highest bidder at a public auction of merchandise grown on state lands. However, this bidder was informed by the Office of Price Administration that his bid was above the ceiling price and that if he consummated the purchase the Price Administrator would hold him duly responsible. During the subsequent trial testimony was given showing that a state law clearly provides that the state authorities must sell this kind of property at auction to the highest bidder. The higher court held the purchaser could make the purchase and in holding the O.P.A. ceiling price was not effective to invalidate a state law, it said:

"It would seem that . . . a grave doubt exists as to whether the Congress in enacting a war measure relating to the fixing of prices at which commodities may be sold has the power to make it applicable to a state with reference to property it owns and holds for the purpose of carrying on its governmental functions."

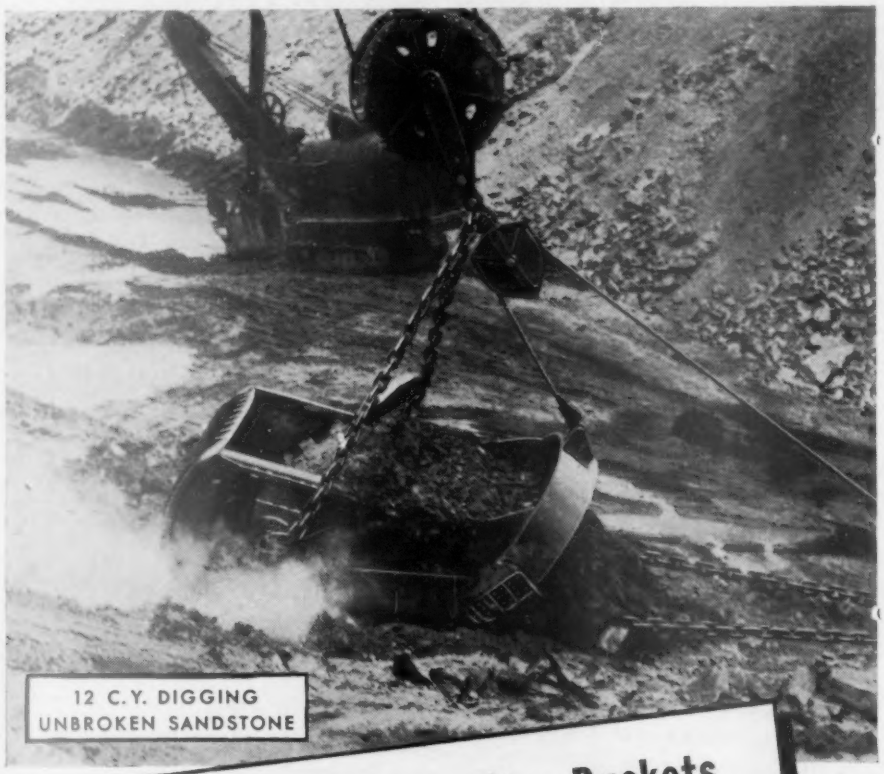
However, it must be realized that this is the only case known to be on record where this point of law was involved. Whether other courts will hold likewise remains to be seen. The case, however, was decided by the Supreme Court of Washington.

*Legal Editor:* A few months ago we made a deal to sell our product at the ceiling price with the understanding that the purchasers would pay the broker's commission. Now the O.P.A. has notified us that we have exceeded the ceiling price. Can this be so? Please give us a decision on this point.—P. & R. C.

*Answer:* Brokers are normally the agents of the processor or manufacturer and not the agent of the manufacturer's customers. For illustration, in *Bowles, Administrator Office of Price Administration v. Sisk,* 144 Fed. (2d) 163, a suit was instituted by the Office of Price Administration to enjoin certain brokers from taking part in any sale of merchandise wherein the total price paid by the buyers to the sellers plus the amount paid to the brokers exceeds the seller's allowable maximum ceiling price.

During the trial testimony was given which proved that a broker became the buyer's agent for the purchase of merchandise and that he was paid as compensation 3 per cent. of the purchase price of such goods. In holding these transactions illegal, because this 3 per cent. broker's commission increased the buyer's price above the ceiling, the higher court said:

"The true broker serves either as representative of the seller to find him market outlets, or as representative of the buyer to find him sources of supply . . . and only where there is desire to avoid the effect of some law is there ordinarily any occasion to act as independent dealers or to charge brokerage commissions to buyers."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DIG FASTER

***Get maximum production from YOUR dragline machines . . . Install Page AUTOMATIC buckets NOW!***

● SEEING a Page AUTOMATIC bucket in actual operation is more convincing than a thousand words. It ALWAYS lands with all weight on the teeth . . . it digs at first pull of the load line without resting on its bottom . . . and loads within only one or two bucket lengths!

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**DRAGLINE BUCKETS**

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# TRAFFIC News Digest

## ILLINOIS FREIGHT ASSOCIATION

*IRC 511-228*—Sand, gravel, strippings, sand or gravel pit, carload, minimum weight 90 per cent. of the marked capacity of the car, except that when the car is loaded to its full visible capacity, the actual weight will apply, but not less than 40,000 pounds, from Chillicothe, Ill., to various points in Illinois.

| To (representative) | Present | (Rates in cents per net ton) Proposed |
|---|---|---|
| Buda | 150 | 124 |
| Galva | 133 | 124 |
| Oneida | 144 | 124 |
| Watago | 133 | 111 |
| Vermont | 144 | 132 |
| Astoria | 155 | 132 |
| Arenzville | 166 | 132 |
| Jacksonville | 169 | 139 |
| Waverly | *130 | 139 |
| Girard | 177 | 153 |

*Terminal rate on intrastate traffic.

*IRC 511-229.*—Sand and gravel, carload, from Lawrenceville, Ill., to B.&O. R.R. stations in Illinois: To establish the following rates:

| To St. Louis Division | (Rates in cents per net ton) |
|---|---|
| Main Line: | |
| Bridgeport, Sumner | 66 |
| Claremont | 72 |
| Olney | 84 |
| Higgins, Noble, Clay City, Flora | 88 |
| Kenner, Xenia, Greendale, Iuka, Salem | 97 |
| Springfield Branch: | |
| Louis, Riffle, Iola | 97 |
| Shawneetown Branch: | |
| Rinard, Asne, Geff, Fairfield | 88 |

Rates apply for B.&O. delivery only.

When delivery is required on tracks of connecting lines, switching charges of such lines will be in addition to the rate.

*ORMV 511-25.*—Limestone, ground or pulverized, unburned, carload. To publish through commodity rate from Hannibal, Louisiana, White Bear, Mo., Marblehead and Quincy, Ill., to Nashville, Tenn., of $3.78 per ton, which rate represents Evansville, Ind., combination.

## SOUTHWESTERN FREIGHT BUREAU

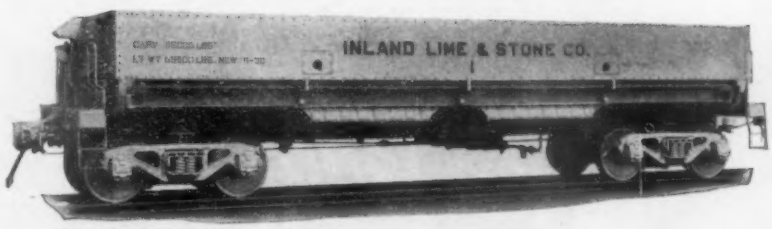
*Docket 36002 (2).*—Sand, Marquette and Cape Girardeau, Mo., to stations in Illinois. To establish rates on sand (except asbestos sand and silica sand), carload, minimum weight 90 per cent. of the marked capacity of the car, except that when the car is loaded to its full visible capacity, the actual weight will govern, the same as in effect on crushed stone, from Marquette and Cape Girardeau, Mo., to points in Illinois on the Mo.-Ill. R.R.

*Docket 36082 (2).* — Agricultural limestone, Rivermines, Mo., to Burton, Mo., etc. To establish a rate of $1.50 per ton of 2,000 pounds on agricultural limestone, carloads, for soil-treating purposes, in open-top cars, from Rivermines, Mo., to Burton, Mo., and other necessary intermediate points.

*Docket 36109 (2).*—Lime, Texas points, to points in Illinois. To establish rates of 33 cents, minimum weight 30,000 pounds, and 26 cents per 100 pounds, minimum weight 50,000 pounds on lime in carloads, description and minimum weight as shown in Item


★ Steelcar ★

**Modern, Dependable Haulage Equipment**




**All Steel**

**AIR DUMP CARS**

**for Centralized Dumping Operations**

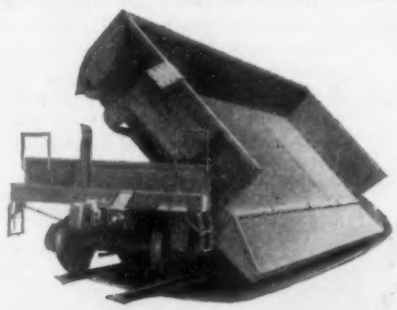
★ **30 cubic yards level capacity**

★ **45 cubic yards with average 30° heap**

★ **Load Carrying Capacity, 100,000 Pounds**

Where dumping operations are centralized at one point, such as at the primary crusher of a limestone quarry, the dump cylinders, with which air dump cars are ordinarily equipped, may be omitted. In these cases a suitable pneumatic dumping arrangement is installed at the crusher.

The omission of dump cylinders reduces the initial cost of the cars by a very substantial amount and has the further advantage of lower maintenance expense. The cars otherwise possess the usual features of design and operation found in all Pressed Steel Air Dump Cars. Descriptive Bulletin with technical data on request.



***Smooth Floor***
***Steep Dumping Angle***
***Free—Rapid Discharge***
***in few seconds of time.***

**PRESSED STEEL CAR COMPANY, INC.**
INDUSTRIAL DIVISION
PITTSBURGH, PA.

205-C of S. W. L. Trf. 227-D, from Texas points, shown in above item, to Alton, Federal, Wood River, Hartford and Roxana, Ill.

### TRUNK LINE ASSOCIATION

*Docket 42775 (shipper).*—Limestone, crude, fluxing, foundry and furnace, in open-top equipment, carload, minimum weight 90 per cent. of the market capacity of the car, etc., from Blue Bell, Devault, Williams and Cedar Hollow, Pa., to Steelton, Pa., $1.16 per ton of 2,240 pounds, in lieu of current rate of $1.28 per gross ton. Reason: Comparable with rates applying from other points.

*Docket 42774 (shipper).*—Stone, viz.: crushed and screenings (will not include agricultural limestone or ground limestone, unburned; fluxing stone or firestone; or stone coated with oil, tar or asphaltum), in straight or mixed carloads, minimum weight 90 per cent. of the marked capacity of the car, etc., from Monocacy, Pa., to Dayton, O., $5.17 per net ton and to St. Louis, Mo., $7.26 per net ton, in lieu of present fifth class rates of 37 cents and 48 cents per 100 pounds, respectively. Reason: To restore rates previously in effect.

*Docket 42789 (shipper).*—Rough quarried firestone, carload, minimum weight 60,000 pounds, from Glenside, Somerton, Janney and Trevose, Pa., to Weirton, W. Va., $2.86 per net ton, in lieu of present Class 17½ rate of 19 cents per 100 pounds. Reason: Comparable with rates applying to other points.

*Docket 42822 (shipper).*—Limestone, broken, crushed, ground or pulverized, carload, minimum weight 60,000 pounds, from South Bethlehem, N. Y., to various stations on the N.Y.C. R.R. as per exhibit A, a copy of which will be furnished on request, all proposed rates representing substantial reductions. Reason: Comparable with rates applying from and to other points.

*Docket 42828 (shipper).*—Slag (not suitable for further extraction of metal), carload, minimum weight 90 per cent. of the marked capacity of the car, etc., from Bethlehem and Swedeland, Pa., to State College, Pa., $2.09 per net ton, in lieu of present 6th class rate of 24 cents per 100 pounds. Reason: Comparable with rates applying from and to other points.

### WESTERN TRUNK LINE ASSOCIATION

*E-8-575.*—Clay, crude or ground, carload, from Belle Fourche, S. D., to Lakin, Kan. Proposed by shipper: 32 cents per 100 pounds.

*E-8-576.*—Clay, crude or ground, carload, from Belle Fourche, S. D., to Memphis, Tenn. Proposed by shipper: 37c per 100 pounds.

*41-663.*—Limestone, crushed or ground, carload, subject to minimum-weight provision shown in the application, from Mosher, Ste. Genevieve and Marlo, Mo., also Bonne Terre, Desloge, Doe Run Lead Companys Mill No. 3 Flat River, Rivermines and St. Francois, Mo., to stations in Iowa shown in Exhibit A attached to the application dated December 20, 1944. Proposed: Rates set forth in the same exhibit.
scribed in Item 20, W.T.L. Tariff No. 41 I.C.C. A3217. From Bay City, Hager, Maiden Rock, Wis., and Red Wing, Minn., to Medina, O. Proposed: Per net ton:
Descriptions:

| | |
|---|---|
| Column A | $3.85 |
| Column B | 4.24 |
| Column C | 3.85 |

*E-41-671.*—Chatts (lead or zinc mine refuse); grout; limestone, agricultural, for soil treatment; slag, crushed and broken; stone, crushed, broken and ground; stone, rip rap; stone, rubble (rough broken, irregular pieces, not machined or tooled); strippings, stone quarry. From Dell Rapids, S. D., to Atchison, Kan., Kansas City, Mo., Leavenworth, Kan., Nebraska City, Neb., and St. Joseph, Mo. Proposed by shipper: 13 cents per 100 pounds.

*E-43-186.*—Stone, rough quarried and not further finished than sawed, chipped or scabbled on four sides, carload, minimum weight 50,000 pounds. From Silverdale, Kan., to St. Louis, Mo. Proposed by shipper: establish a rate of 20c per 100 pounds.

*E-43-187.*—Stone, as described in Item 3935-B Supplement 14, W.T.L. Tariff 18-R, L. E. Kipp's I.C.C. No. A-3549, from Minnesota origins, viz.: Cold Spring, Delano, Ortonville, Rockville, St. Cloud, Sacred Heart, Sauk Rapids and Milbank, S. D.

| To: | Proposed |
|---|---|
| Marysville, Kan. | 35 |
| Columbus, Neb. | 33 |
| David City, Neb. | 32 |
| Stromsburg, Neb. | 36 |
| Central City, Neb. | 36 |
| Grand Island, Neb. | 38 |
| Hastings, Neb. | 39 |
| Edgar, Neb. | 39 |
| Kearney, Neb. | 40 |

---

Henry Harnischfeger was recently elected a member of the board of the Harnischfeger Corporation, Milwaukee, Wisconsin.

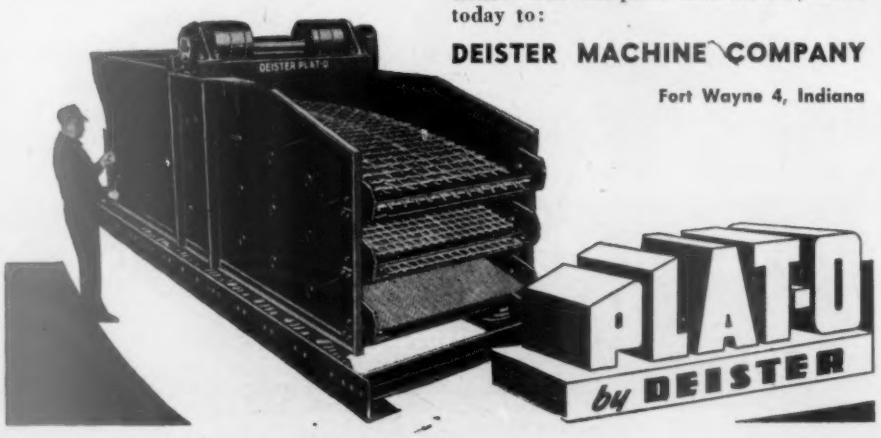
At the Pipe Creek Stone Company, Sweetser, Indiana — one of eight aggregates plants operated by the Irving brothers — Plat-O Vibrating Screens are standard grading equipment . . . *standard* because, throughout the years, they have proved the answer to *better sizing—cheaper.* F. W. (Jake) Irving operates the 1800-ton a day Pipe Creek plant the year round, 24 hours daily during peak periods, producing everything from agricultural limestone up . . . and does the job with four Plat-O Screens.

The Irving brothers have purchased 20 Plat-O Screens since 1931, and all 20 are still in operation . . . still taking a tough pounding hour after hour . . . still producing aggregates in a wide range of sizes—accurately and cheaply.

Irving brothers are among the many aggregates operators who have found it more profitable to standardize on Plat-O Vibrating Screens. Why not take a tip from these *repeat order* buyers by inquiring about Plat-O Screens for your operations? For complete information, write today to:

**DEISTER MACHINE COMPANY**

Fort Wayne 4, Indiana



# NEW MACHINERY and SUPPLIES

## ● New Loader

The "Fleetfoot" loader developed by the Jaeger Machine Company, Columbus, Ohio, is equipped with a 180-degree swinging boom which enables it to load trucks from either side without backing

Boom swings through 180 degrees.

and turning the entire machine. Crowding, hoisting, swinging, and dumping are accomplished in one rapid, continuous movement. Power-controlled buckets enable the operator to control dumping as desired and to close the bucket while it is being returned to loading position. Two speeds for boom operation are available, independent of traction.

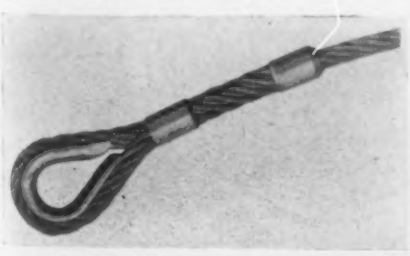
As no maneuvering is required, the machine can work close beside trucks in crowded spaces or load from both sides. The swinging boom also enables it to dig outside its wheels.

With 65 hp. gas or Diesel engine, front-wheel drive through big pneumatic-tired wheels which carry 80 per cent. of the load, and low gear traction speed of ¾ m.p.h., crowding power is ample to dig into stone piles and serve as a prime mover for trucks and freight cars. Six forward and six reverse travel speeds up to 15 m.p.h. enable the machine to travel to and from the job under its own power, and operate over a wide area. Vickers power steering is standard. This mobility and the use of quickly interchangeable buckets of ½- to 2-cubic yard size enable a single machine to handle a wide range of material.

With crane booms of 12,000-pound capacity or 7,000-pound capacity fork lift, which can be installed as attachments, the same machine is also used for handling concrete pipe and other products.

## ● Splice Saves Rope

American Chain & Cable Company, Inc., Bridgeport, Conn., announces the development of a new method for splicing wire rope into slings or various assemblies—a method which renders hand-tuck splicing obsolete and unnecessary.



New cable splice.

The splice is flexible clear to the terminal, and always develops 100 per cent. of the rope's strength. The Accoloc Safety Splice does not distort the rope structure and so maintains equalization of stresses in all strands.

## ● Transmission Belt

A new "Compass 250" transmission belt which utilizes steel cables instead of cord or fabric for the carcass is featured by the Goodyear Tire & Rubber Company. The steel cables are encased in an envelope of non-load-carrying fabric. They consist of a special twisted, finely stranded, high-tensile wire. Half the cables in a belt are twisted to the left and the other half to the right to insure a neutralized, true-running belt.

Steel cables encased in non-load-carrying fabric.

The belt is made with synthetic rubber to resist lubricating oils or other deteriorants.


Three reasons
WHY TDA
is used in making the majority of
HIGH EARLY STRENGTH CEMENTS

1. TDA is a powerful grinding aid.
2. TDA assures the manufacture of a uniform product.
3. TDA improves the desirable properties of the resulting concrete, particularly in strength, plasticity and durability.

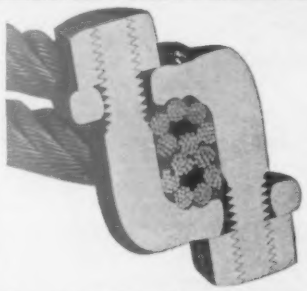
TDA is not an air-entraining agent and does not lower the density of concrete. It is the only addition to High Early Strength Cement permitted by ASTM.

DEWEY AND ALMY CHEMICAL COMPANY
CAMBRIDGE 40, MASSACHUSETTS

TDA
the accepted grinding aid for all portland cements.

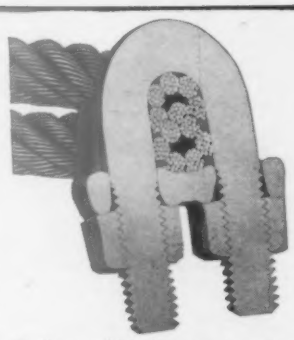
PREFORMED WIRE ROPE DESERVES TO BE HANDLED WITH CARE. SEE WHAT ACTUALLY HAPPENS IN THESE CROSS-SECTION VIEWS.

# GRIP...or



Laughlin "Fist-Grip" Safety Clip holds rope firmly by friction — with hardly any flattening.

# CRUSH?



Ordinary U-bolts crush wires, frequently ruining rope ends. (Notice distorted hemp center under "U".)

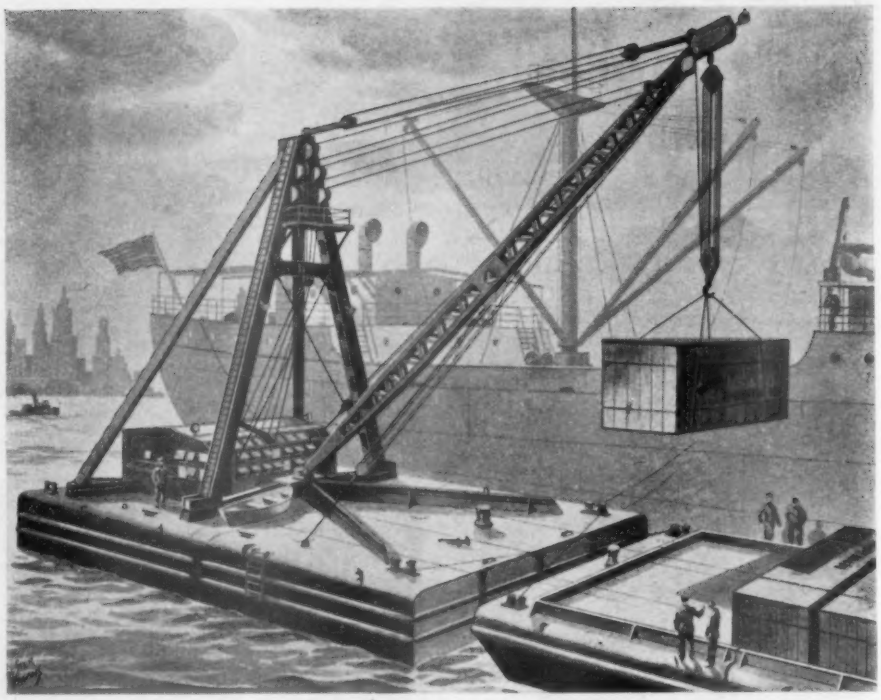
*(Nuts tightened to same tension with torque-indicating wrench in both cases)*

"Fist-Grip" Clips protect your rope. 25% fewer can be used, because improved bearing surfaces deliver full rope power. They save time, too, because they go on faster — with any type wrench — and can't be put on backwards. They are the only clips with drop-forged bolts. Order test samples from your distributor today.

Distributed through mill, mine and oil field supply houses. For a complete catalog on Laughlin's wire rope and chain hardware, write to Dept. 3, The Thomas Laughlin Co., Portland 6, Maine.

LAUGHLIN

THE MOST COMPLETE LINE OF DROP-FORGED WIRE ROPE AND CHAIN FITTINGS



Pontoon barge for machinery used by army.

## ● Sectional Pontoon Barge

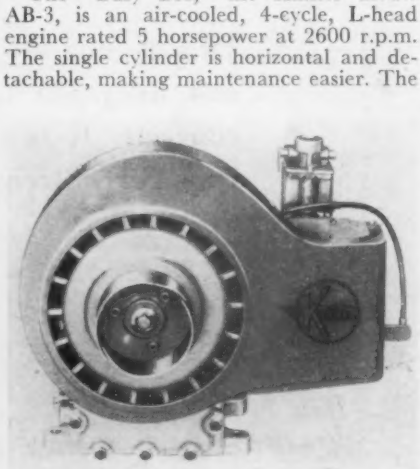
The Odenbach Holding Corporation of New York has developed a pontoon type of barge, made in sections, suitable for carrying crane or derrick rigs and machinery. The sections provide the hull structure for almost any type of deck barge for use in inland waters, harbors or for coastwise purposes. They are constructed of steel channels by the Odenbach patented method, and are designed for projects requiring the moving of floating equipment to the site of operations overland or through narrow, shallow waterways. Hull sections are joined at the site of operation. Thirty-ton floating derricks and deck barges, such as the one in the accompanying illustration, are in use all over the world by the United States Army and by other members of the United Nations.

## ● New Air-Cooled Engine

A 5 horsepower all-purpose air-cooled engine that embodies new principles in small engine design and manufacturing was announced recently by Kinner Motors, Inc., Glendale, California.

The "Busy Bee," the Kinner model AB-3, is an air-cooled, 4-cycle, L-head engine rated 5 horsepower at 2600 r.p.m. The single cylinder is horizontal and detachable, making maintenance easier. The whole unit requires only 2.4 cubic feet of space.

The Busy Bee is alleged to be the lightest engine on the market in its horsepower class. This is due to the use of aluminum alloy.



Four-cycle L-head engine.

## ● New Buckets

Pettibone Mulliken Corporation of Chicago, announce a new Big 4 line of material handling dippers and buckets. Practically the entire production of these

Slated for domestic market.

items is going to the armed services with top priorities, but a limited output still is going to the domestic market. After the war, all popular sizes will be stocked. Interchangeable teeth are furnished on ½- and ¾-cubic-yard sizes of all the buckets except the clamshell.

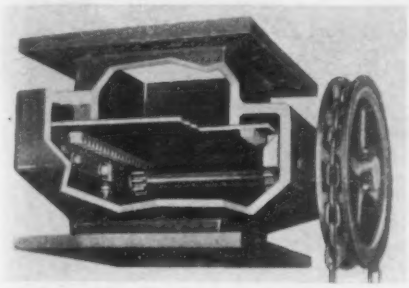
## ● Welding Electrode

An electrode for arc welding known as the EutecTrode 28 has been developed by the Eutectic Welding Alloys Company. The new unit has a coating of special bronze alloy suitable for use on either a.c. or d.c. current. It will deposit dense and tough metal to match most types of bronzes and may be used for welding copper and brass.

## ● Bulk Material Valve

Featured by the Stock Engineering Company of Cleveland is a bulk material valve suitable for bin, conveyor or spout outlet applications where the material is not too coarse to flow through a valve of this size. The valve may be equipped

with a 12-inch diameter hand wheel or with a deeply-grooved pocket sheave and chain. Other special features include

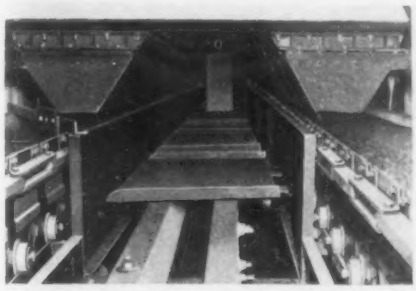


Cut-away view of valve.

vertically adjustable self-cleaning, slide bars; a dust-tight gate cover; a tight seal resulting from the lapping of inlet nozzle by the gate on all sides.

## ● Self-feeding Conveyor

The development of a new type of conveyor, the Link-Belt Sidekar-Karrier,

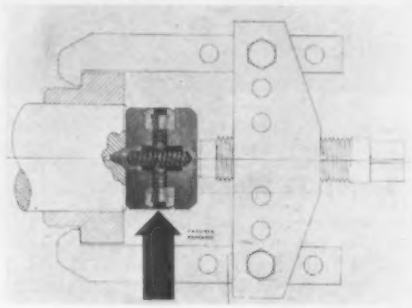


View of conveyor showing feed spouts above.

designed to handle bulk materials in a horizontal run-around path, within minimum headroom, is announced by the Link-Belt Company. The conveyor is self-feeding from any one of many feed spouts located above its horizontal run-around path of travel and is self-discharging to any number of points, permitting continuous automatic operation. The buckets and spouts are self-cleaning, thus reducing corrosion. The Sidekar-Karrier is available in two types. Type 1 is recommended for boilerhouse applications; type 2 is especially useful for handling capacities up to 100 tons per hour.

## ● Shaft Protectors

Keystone shaft protectors, manufactured by the Keystone Electric Company of Baltimore, are fitted with Timken roller thrust bearings. A complete set of



The protector shown in place.

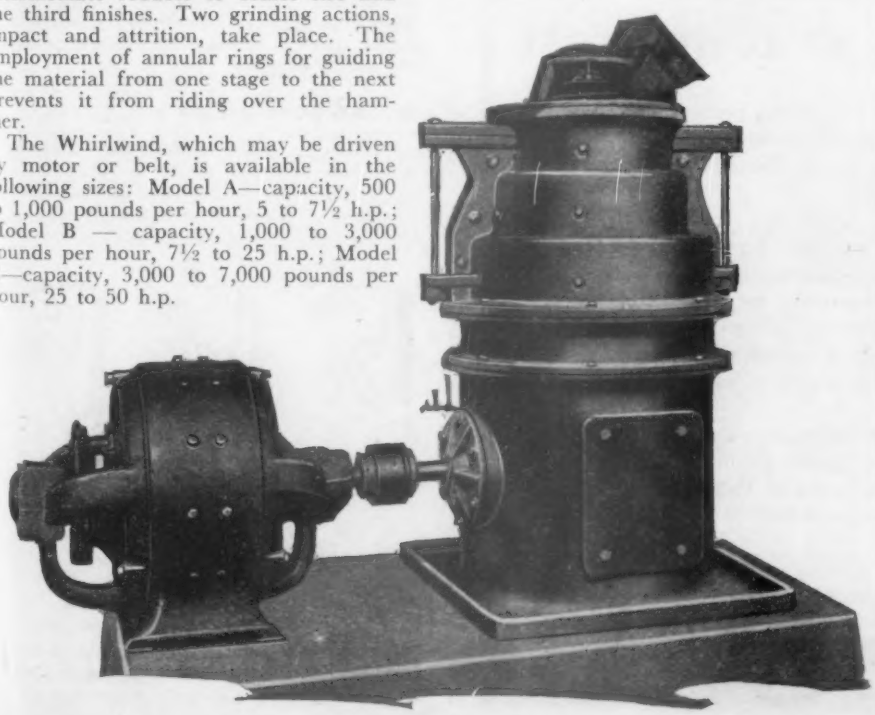
roller bearing units and three adaptors (for shafts less than 1⅝ inches in diameter) is fitted in a heavy permanent case.

## ● Two-action Pulverizer

The Whirlwind Pulverizer, manufactured by George F. Pettinos, Inc., of Philadelphia, was designed for the reduction of stone, mineral ores, coal and chemical materials from 1 inch to a fine uniform powder. The upper section of the machine constitutes the crusher, the intermediate reduces to coarse size and the third finishes. Two grinding actions, impact and attrition, take place. The employment of annular rings for guiding the material from one stage to the next prevents it from riding over the hammer.

The Whirlwind, which may be driven by motor or belt, is available in the following sizes: Model A—capacity, 500 to 1,000 pounds per hour, 5 to 7½ h.p.; Model B — capacity, 1,000 to 3,000 pounds per hour, 7½ to 25 h.p.; Model C—capacity, 3,000 to 7,000 pounds per hour, 25 to 50 h.p.

In construction, the pulverizer is a step-shaped casing, vertically split. Heavy, semi-steel castings are used throughout, and chrome nickel alloy is employed for the hammer and breaker surfaces. The Whirlwind has S.K.F. heavy-duty, self-aligning ball bearings with a test strength exceeding 15 times the strain imposed upon them.

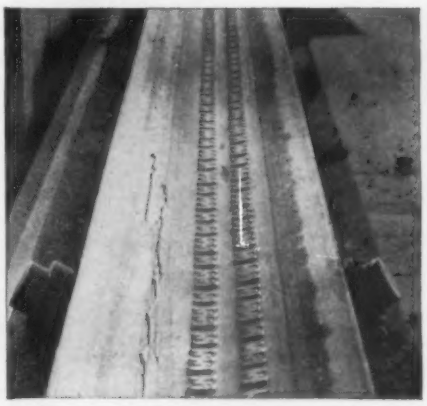



CONVEYOR BELTS

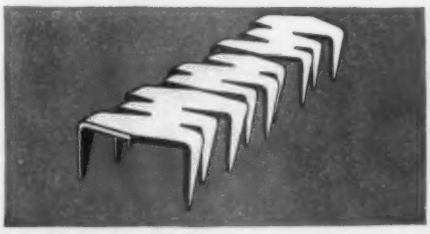
fastened or repaired

ON THE JOB

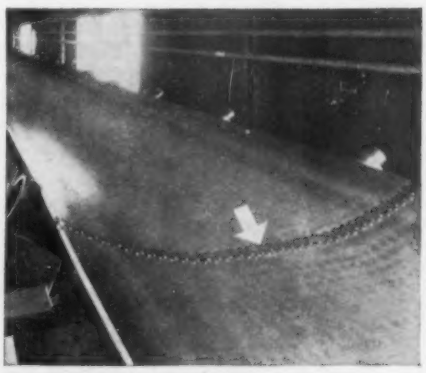
in a few minutes



All you need are hammer, block of wood and . . . .



BRISTOL'S BELT LACING



For rubber or woven conveyor belts up to 13/16" thick.

Write for Bulletin 736.

THE BRISTOL COMPANY

Mill Supply Division

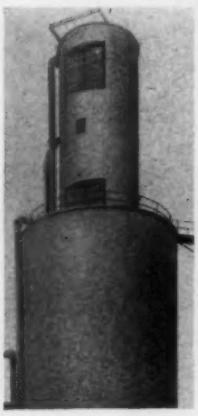
137 Bristol Road, Waterbury 91, Conn.

DISTRIBUTORS EVERYWHERE

# NICHOLSON BINS BUILT FOR

Bulk storage of sand, stone, cement, chemicals, and all granular materials.

**PLAN NOW**



THE NICHOLSON CO.

10 Rockefeller Plaza
New York 20, N. Y.

• Six-cylinder Diesel engine driving rock crusher, operated by Halvorson Brothers, Rochester, Minnesota.

## • Series 71 Diesel Engine

Before the war the General Motors Series 71 two-cycle Diesel engine was finding a full measure of work to do in trucks, tractors, boats, rock crushing, and other applications.

With the war came the demand for more power for less fuel, with less weight and in less space. The Series 71 engine met these needs in the form of "Twins," which power the M-3 and M-4 tanks and the M-10 tank destroyer. Then came "Quads," which power the LCI (L), Landing Craft Infantry (large). The combining of the basic engines into these multiple-engine power units was possible because of the simplicity of the Series 71 engine. Its symmetrical block permitted right- or left-hand rotation and mounting of accessories on either side. Thus it was possible to double and quadruple the horsepower by coupling together two and four basic engines. In each instance power is furnished to a single driveshaft.

Detroit Diesel Engine Division will market the Series 71 Industrial Diesel engines through its own distributors and dealers. The 2, 3, 4 and 6-cylinder single engine, the "Twin" 4 and 6 and the "Quad" 4 and 6 power units will furnish economical power for portable and stationary rock crushers, cement plants, lime plants, concrete plants and other nonmetallic processing applications. Various gear reductions will permit higher engine speed and more horsepower without added weight.

## • Sharpening Tips

Maximum performance for digging equipment was the objective of designers at the Allied Steel Products, Inc., Cleveland, Ohio, who have produced Mango repointer tips. These sharpening tips come in styles adapted for bucket, ditcher, dragline, dipper and scarifier units. They are made in four sizes, each in 42-inch wedge bar lengths. Sections of the desired width are torch-cut from the bar, tacked on, filled in where necessary and hardfaced, if desired, with welding electrodes.

Stages in applying tips.


# SAUERMAN

*Long Range Machines*

## MOVE MORE YARDAGE AT LOWER COST

(At Top) Gravel is moved from hill to crusher at rate of 105 cu. yd. an hour by Sauerman Scraper. (Lower View) Cableway digs clay for cement mill.

**DIGGING and stockpiling problems that confront aggregate producers are simplified—costs are reduced — by use of Sauerman Scrapers and Cableways.**

**A Sauerman machine digs with equal facility under water, on mushy ground, on a hillside or in a rough pit. Operation is continuous—digging, hauling and dumping. Capacities run from 10 to 600 cu. yd. per hour, varying in accordance with size of bucket and length of haul.**

**Operation and maintenance of a Sauerman machine is simple. Small overhead and moderate power requirements mean larger profits on every yard of material produced.**

**Write for our catalog and at same time tell us about your material-handling problems.**

SAUERMAN BROS., Inc., 534 S. Clinton St., CHICAGO 7

## TRADE NOTES

The Power Crane and Shovel Association, organized on December 7, 1944, to deal with problems of production, engineering, safety, transportation and distribution, lists the following member-companies:

Bay City Shovels, Inc.
The Browning Crane & Shovel Company
The Buckeye Traction Ditcher Company
Bucyrus-Erie Company
The Byers Machine Company
Harnischfeger Corporation
Insley Manufacturing Corporation
Koehring Company
Lima Locomotive Works, Inc.
Link-Belt Speeder Corporation
Manitowoc Engineering Works
The Osgood Company
"Quick-Way" Truck Shovel Company
The Sargent Machine Company
The Thew Shovel Company
Unit Crane and Shovel Corporation

The association has a board of directors composed of the following: P. H. Birckhead of Bucyrus-Erie Company, G. G. Dimond of Insley Manufacturing Corporation, G. E. Long of Koehring Company, G. H. Olson of Link-Belt Speeder Corporation, Morgan Ramsay of Bay City Shovels, Inc., F. Salditt of Harnischfeger Corporation and C. B. Smythe of the Thew Shovel Company.

The following officers were elected at the organization meeting: president, G. E. Long; vice-president, G. H. Olson; secretary, Herbert S. Blake, Jr.; treasurer, Paul Weiss.

---

C. G. Cox

The appointment of C. G. Cox to the executive staff of the Joshua Hendy Iron Works, Sunnyvale, California, has been announced by A. A. Browne, manager of engineering and sales. Mr. Cox was formerly vice-president and general manager of the Enterprise Engine and Foundry Company of San Francisco.

---

During the last week in April the Mine and Smelter Supply Company of Denver, Colorado, celebrated its 50th anniversary. Founded on April 23, 1895, the firm has sent representatives throughout the world. Sales offices are in New York and San Francisco, and branches are located in Salt Lake City and El Paso, Texas, as well as in Denver.

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In order to facilitate handling of its extensive export activities, Gardner-Denver Company, Quincy, Illinois, has established the main office of its export department in New York City, the company recently announced. This arrangement has been made in contemplation of a material expansion in export sales activities. Located in the Woolworth Building, New York City, the new Gardner-Denver export office will be headed by G. V. Leece, vice-president of the company, who will now have charge of the entire export division.

Associated with Mr. Leece in the New York export office are S. T. Brown, assistant manager, and Harold Weber, assistant sales manager. Mr. Edward Church will now be associated with the Denver office in the export division and will be concerned with the further development of Gardner-Denver rock drills and mining equipment now utilized in all foreign fields and manufactured in that plant. C. E. Kaiser, who was assistant export manager under Mr. Church, will be in charge of the export division in Quincy.

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J. J. Huether was recently appointed assistant manager of the Industrial Divisions of the General Electric Company, according to an announcement by Karl H. Runkle, manager. Mr. Huether had been manager of the Industrial Materials Division for 8 years. W. A. Wirene, formerly Mr. Huether's assistant, was appointed manager of the Industrial Materials Division. Both men have been affiliated with General Electric for 20 years.

J. J. Huether

W. A. Wirene


RYERSON STEEL IN STOCK

Call Ryerson when you need steel—any kind, shape, or size. Large stocks are available at ten convenient plants. Ask for a Ryerson Stock List—your guide to quick shipment of steel.

*Principal Products Include:*

Bars • Shapes • Structurals • Plates • Sheets
Floor Plates • Alloy Steels • Stainless Steel
Shafting • Screw Stock • Wire • Mechanical Tubing • Boiler Tubes • Reinforcing Steels
Tool Steels • Babbitt • Nuts • Bolts • Rivets
Welding Rod • Etc.

**JOSEPH T. RYERSON & SON, Inc.**

*Plants at:*
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For WEIGHING, FEEDING and PROPORTIONING

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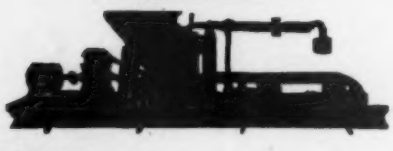

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These modern weighing machines operate automatically and accurately on conveyors to assure a continuous flow of material for speeding up the production lines. Write for Catalog No. 5

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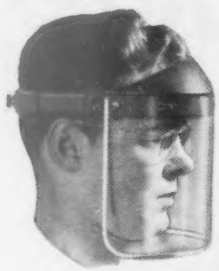

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Both men and women appreciate these comfort features. Light weight. Tilting visor "stays put" in any position. Plenty of room for spectacles. Clear plastic visor free from optical distortion.

# PRACTICAL

Exclusive "Slot-Lock" holds visor securely in place. Can't be jarred loose. Easily replaceable. Three visor-lengths —4, 6 or 8 inch. Two thicknesses—.030 or .060 inch. Two colors—clear or green. Visor and sweatband easily replaceable.

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GOGGLES • RESPIRATORS • GAS MASKS • HELMETS

**WILLSON** DOUBLE

PRODUCTS INCORPORATED

READING, PA., U.S.A. *Established 1870*


The Hammond Bag and Paper Company, Wellsburg, West Virginia, has announced the appointment of M. E. Greiner as vice-president in charge of sales. Mr. Greiner also will retain his position as assistant general manager.

M. E. Greiner

Bob Barnes is back again with Link-Belt Speeder, but he has a new and bigger job. He is now assistant sales manager. His headquarters are in the Chicago office.

For the past couple of years Mr. Barnes has been on loan to the WPB in Washington, where his work was mostly on anti-friction bearings and internal combustion engines.

A change in ownership and management, effective March 27, was announced by the McGann Manufacturing Company, Inc., of York, Pennsylvania, which now is owned solely by Clyde H. Smith. Mr. Smith became president and treasurer of the firm, and Mrs. Catherine J. Smith was elected vice-president and assistant treasurer. J. E. Schmidt is now secretary and controller of the concern.

J. H. Patterson has been appointed manager of the Cummins Diesel Export Corporation, subsidiary of the Cummins Engine Company, Inc., Columbus, Indiana, manufacturers of heavy-duty diesels for automotive, marine and industrial service. Offices of the Export Corporation are located at 6303 Chrysler Building, New York 17, N. Y.

William F. McCandlish, 45, Hercules Powder Company explosives salesman, who was captured by the Japs in Manila in 1942 and interned in a prisoners' camp, was among those Americans freed when U. S. troops captured the Los Banos prison camp.

Walter F. Meyers, sales, construction and consulting engineer for public and private corporations, has been appointed to the staff of the Washington office of the Cooper-Bessemer Corporation.


# IT'S A LIFESAVER

**for maintaining high Production Schedules**

Producers everywhere are depending on "AMERICANS" to supply a huge output in meeting today's demands for uniform crushed stone.

They "never let you down" because their design and construction guarantees unequalled durability, capacity, and operating economy.

AMERICAN ★ CRUSHERS ★

*Write for Bulletin*

**AMERICAN PULVERIZER COMPANY**

1059 Macklind Ave., St. Louis 10, Mo.

A. Kauffmann

Alfred Kauffmann, retired president of the Link Belt Company, was elected a director of the Gardner-Denver Company at the annual stockholders' meeting held in the company's Quincy, Illinois offices March 27. Mr. Kauffmann succeeds P. H. Gardner, who has resigned his directorship because of ill health.

Mr. Kauffmann, who is well known in business and industry, joined the Link Belt Company as a draftsman immediately after his graduation from Pratt Institute in Brooklyn. He retired in 1943, but remains a member of Link Belt Company's Board of Directors. Mr. Kauffmann is also a member of the board of the LaPlant-Choate Manufacturing Company of Cedar Rapids, Iowa and of the Cardox Company of Chicago.

---

The Davey Compressor Company, Kent, Ohio, have announced the appointment of three new dealers to handle the Davey line. Wallace R. McKinney, Jr., 154 South Franklin Street, Mobile, Alabama, will now provide sales and service for Davey equipment in southern counties of Alabama and in West Florida counties around Pensacola.

Murray Machinery Company, Sales Division, Inc., 169 State Street, Augusta, Maine, will cover the states of Maine and New Hampshire.

Ohio Muf-L-Cote Company. 71 S. Broadway, Akron, Ohio, will handle the Davey industrial compressor line in the Akron-Canton-Massillon areas.

---

Tractor & Equipment Co., has expanded its facilities by taking a 10-year lease on the 200 x 60 building adjacent to the firm's present plant at 3515 West 51st St. Tractor & Equipment Co. specializes in the sale and service of new and used industrial and construction machinery including locomotives, locomotive cranes, crawler cranes and shovels, truck cranes, rock crushers and other equipment.

---

Paul Pigott, president of the Pacific Car and Foundry Company of Seattle and Renton, Washington, recently announced that the company has acquired controlling interest in the Kenworth Motor Truck Corporation of Seattle. The following is a list of the new officers of the Kenworth Motor Truck corporation: Paul Pigott, president, John Holmstrom, vice-president and general manager for the Kenworth Division.

---

Under the title of the Purdy Company, Sparrow E. Purdy, John P. Purdy and John I. Duffy have formed a partnership to engage in the railway equipment business and allied enterprises. Offices were opened February 1 at 122 South Michigan Avenue, Chicago.

---

At the annual meeting of the Farrel-Birmingham Company board of directors, held at Ansonia, Connecticut, March 15, Alton Austin Cheney was elected chairman, to succeed Franklin Farrel, Jr., who resigned. Mr. Cheney has been a director of Farrel-Birmingham since 1931.

Lester D. Chirgwin, general manager of the company's Buffalo plant, was elected vice-president in charge of manufacturing, and Franklin Farrel III, plant manager of the Ansonia-Derby plants, was chosen secretary and assistant treasurer.

---

The Allis-Chalmers Manufacturing Company in 1944 produced more than three times as much as it did the year of the attack on Pearl Harbor, and its billings reached an all-time high, according to the annual report issued stockholders on March 22. The Milwaukee firm's sales billed for 1944 totaled $379,485,631.

---

Worthington Pump & Machinery Company, Holyoke, Massachusetts, announces that Charles A. Packard has been elected vice-president and comptroller of the firm. Mr. Packard is vice-president of the Controller Institute of America and chairman of the Accounting Council of the Allied Products Institute machinery section.

---

With the receipt of the fourth star in its Army-Navy "E" Award the Anthony Company, Streator, Illinois, manufacturers of hydraulic hoist dump bodies and motor truck equipment, has earned the cherished privilege to retain and display the coveted pennant bearing four stars.

---

Eric C. Gyllensvard was appointed export sales manager of the Farrel-Birmingham Company, Inc., Ansonia, Connecticut. He will be located in the Chrysler Building, New York City.


*The Spotlight*

IS ON

THE

**GILSON MECHANICAL TESTING SCREEN**

The compact, ingeniously designed GILSON TESTING SCREEN assures a controlled product guaranteed to meet specifications. Test samples of crushed stone, gravel, slag, etc. are carefully sized through five test screens by a smooth and quiet vibration, separating 100 pounds of sample in 5 minutes or less. Eliminate errors that happen through "sizing by guess"—write today for complete information on the GILSON TESTING SCREEN.

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**WITH FULLY ENCLOSED OR OPEN CABS**

THERE is a type of cab and body for any service, in any climate. The built-in strength and balance, with ample power, permit the rugged Linn Haftraks to carry their loads in all kinds of weather—the world around, the year around. Linn Haftraks and Traktrailers are built from 5 to 50 tons capacity. Send for catalog.

**THE LINN MANUFACTURING CORPORATION**

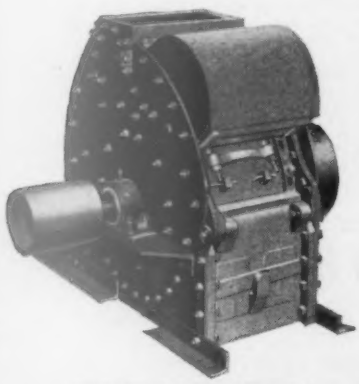
Morris New York

DESIGNERS AND BUILDERS OF **OFF-THE-HIGHWAY** VEHICLES FOR 29 YEARS.

# NEW HOLLAND ADVANCEMENTS!

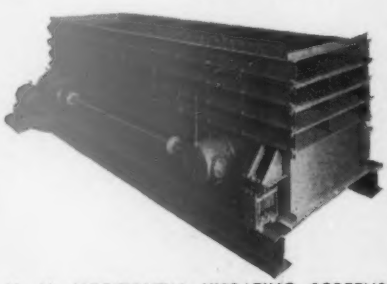
**DOUBLE IMPELLER MODEL 3030 CRUSHER**

Here is a primary and secondary crusher combined into one unit. Reduces run-of-the-quarry stone as large as 30" to an optional minimum of 80% minus 1" in one operation. Will produce from 100 to 150 tons per hour with as little as 100 hp. Lends itself admirably to portable as well as stationary units.



**RUGGED INDUSTRIAL-TYPE LIMESTONE PULVERIZERS**

Set up to produce agricultural limestone in large capacity economically. Install a N.H. No. 30 Impact Type Pulverizer after the Model 3030 Double Impeller Crusher.



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LET N.H. ENGINEERS PLAN YOUR SET UP FOR PRODUCING AGRICULTURAL LIMESTONE OR CRUSHED AGGREGATES. THE MOST ECONOMICAL WAY IS WITH THE MODEL 3030 AND OTHER N. H. EQUIPMENT.

Address P&Q-6

**NEW HOLLAND MACHINE CO.**

**New Holland, Pennsylvania**


Alton Parker Hall has been appointed general manager of sales of American Chain & Cable Company, Inc., operated with headquarters at 230 Park Avenue, New York. Mr. Hall joined the company about a year ago as assistant general manager of sales after having been with Bethlehem Steel Company for 22 years.

---

For outstanding accomplishment in the production of war equipment, the War Department has conferred the coveted Army-Navy "E" upon Economy Pumps, Inc., of Hamilton, Ohio.

## Trade Literature

**The pieces of literature listed below can be obtained direct from the manufacturers named, or requests can be addressed to Pit and Quarry's "Service to Readers" Department.**

INTRODUCING DENVER EQUIPMENT TO EVERY FIELD. 4 pages. Bulletin B3-G19. Denver Equipment Company, Denver, Colorado.

EBERSOL TWO STAGE JAW CRUSHERS. 8 pages. Ebersol Crusher & Engineering Company, Lancaster, Pennsylvania.

BULLETIN FY-131. Type SHH Hydro-Clone unit. Whiting Corporation, Harvey, Illinois.

HERCULES PRODUCTS. 37 pages. Hercules Powder Company, Wilmington, Delaware.

VULCAN "ALLCASTEEL" SHEAVES. 23 pages. Bulletin No. A-396. Vulcan Iron Works, Wilkes-Barre, Pennsylvania.

WOOLBRIDGE TERRA COBRA SCRAPERS. 11 pages. Wooldridge Manufacturing Company, Sunnyvale, California.

SETTLING AND DEWATERING EQUIPMENT. 4 pages. Bulletin No. 1144. Claude B. Schneible Company, Detroit, Michigan.

HOW TO SELECT THE CORRECT BEARING IN MACHINE DESIGN. 6 pages. Bulletin 601. Shafer Bearing Corporation, Chicago, Illinois.

IN WAR AND PEACE. 34 pages. Bucyrus-Erie Company, South Milwaukee, Wisconsin. Booklet containing photographs of dozers, scrapers, and other Bucyrus-Erie equipment in action on war and home fronts, with tributes to construction men who handle such machinery as essential weapons of war.

WHAT ARE THE OPPORTUNITIES FOR COLLEGE MEN IN THE DIESEL ENGINE INDUSTRY? 4 pages. Folder. Diesel Engine Manufacturers Association, Chicago, Illinois.

WELDERS GUIDE TO SUCCESSFUL HARD-FACING. Mir-O-Col Alloy Company, Los Angeles, California.

CEDARRAPID. 40 pages. Iowa Manufacturing Company, Cedar Rapids, Iowa. Book outlining company's history, production setup, distribution plan and personnel.

19 REASONS WHY IT IS THE DOMINANT DRIVE OF INDUSTRY. 14 pages. Multiple V-Zelt Drive Association, Chicago, Illinois.


# FARREL BACON CRUSHERS

**Complete plants designed and equipped, including Screens, Elevators and Conveyors. Machinery for Mines and Rock Quarries, Sand and Gravel Plants. Engineering Service.**

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**ANSONIA, CONNECTICUT**

# PERFORATED METAL SCREENS

**FOR SAND, GRAVEL STONE, ETC.**

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Any size or style screen, in thickness of steel wanted with any size perforation desired.
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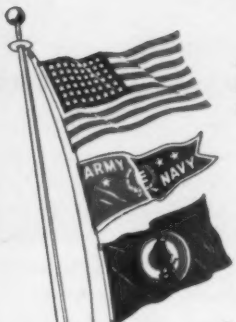
June, 1945

# The CONCRETE MANUFACTURER

A Special Section of...




*and now again! Fourth "E" awarded March 10, 1945.*

*No other tamp-type machine rates as HIGH as a*

*Model A All-Power*

## STEARNS CLIPPER STRIPPER

- *Production records demonstrate* that Stearns Clippers will produce more blocks per man per day than any other machine with comparable power operations.
- *Four separate models* with power tampers ranging from manual feeding and stripping to all-power: Model E produces 100 blocks per hour—Model A, 240 per hour.
- *Interchangeable parts:* Starting with Model E you can, *without sacrifice,* make progressive additions of power equipment until you have all-power (Model A).
- *Outstanding features* include low first cost, low maintenance, adaptability, simplicity.
- *Cored pallets* are used.

***Write today for New Clipper folder describing all four models and attachments.***

*Performance* **Speaks Louder than Words**

**ASK ANY STEARNS OWNER**

**A FEW OF HUNDREDS**

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Port Huron, Michigan
Two Clipper Strippers

**STRICKLER & WAGNER**
Winchester, Virginia
One Clipper Stripper

**VINCENT DeANGELIS**
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One Clipper Stripper

**STEARNS**

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Also manufacturers of Joltcrete Block Machines licensed under the basic Gelbman Vibration Patents . . . Mixers . . . Skip Loaders.

# The CONCRETE MANUFACTURER

JUNE, 1945

A SPECIAL SECTION OF PIT AND QUARRY DEVOTED TO PRODUCTION OF CONCRETE PRODUCTS AND READY - MIXED CONCRETE

Published by Pit and Quarry Publications
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## $200,000 Expansion Program to Call for Tripled Plant Staff

Frederick W. Reinhold, president of Anchor Concrete Products, Inc., Buffalo, New York, has announced plans for the construction of new manufacturing facilities to cost about $200,000. Work is to begin on the project as soon as the firm receives the approval of government authorities. Mr. Reinhold stated that the expansion plans would necessitate a 300 per cent. increase in employment.

## New Firm Incorporated at Richmond, Indiana

Incorporation of Shute Concrete Products, Inc., Richmond, Indiana, has been announced at Indianapolis. The incorporators listed are Frank Oakes, H. Norman Shute and J. R. Harrington.

## Californian Opens Plant for Concrete Units in N. Y.

A former concrete-products operator at Victorville, California, Orey Gadway, has opened a new plant in Bloomingdale, New York, for the production of concrete units. A Mortarless interlocking concrete-block machine is moulding the units.

According to the Mortarless Tile & Machine Company of Los Angeles, similar units are also being installed by William G. Moser at Santa Barbara, California, and by W. H. Schuller in two new plants located in Portland, Oregon, and Vancouver, Washington.

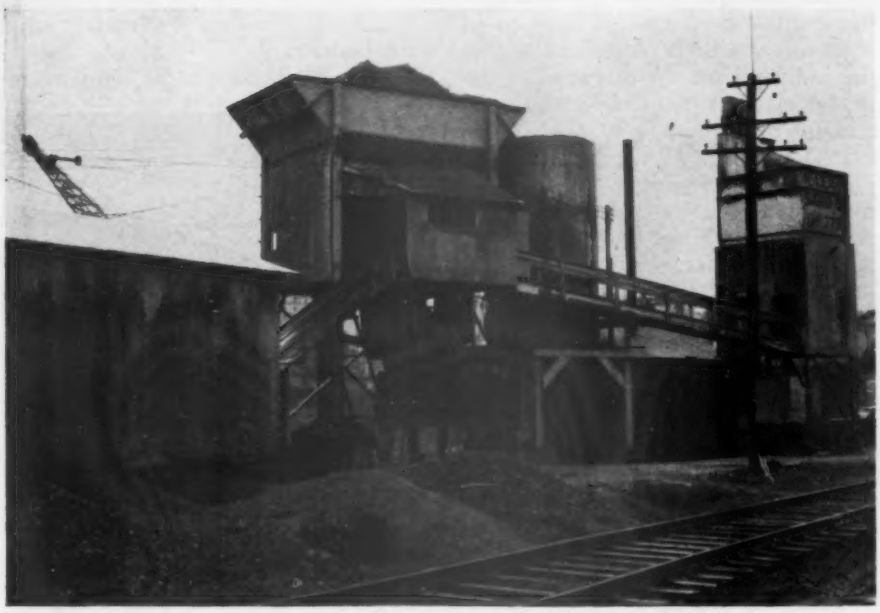
## Ohio Plant Executive Fighting on China Front

From a Chinese combat command with the United States Army came recent word of Lieutenant Clem Beals II of Springfield, Ohio, former assistant manager of the Springfield Cement Products Company. Lieutenant Beals, who now is serving in the adjutant general's section of a Chinese combat command in south-central China, has been twice evacuated from eastern China in the face of advancing Japanese columns.

A fire of unknown origin on March 14 destroyed documents and records at the Utah Concrete Pipe Company plant in Ogden, Utah.

Tremendous yardages of concrete required for the $25,000,000 naval supply base now under construction at Rough and Ready Island, near Stockton, California, are being produced in dual Blaw-Knox concrete batching and mixing plants. The plants have been installed by the Calaveras Cement Company, of Sacramento, California. Aggregates are supplied to the Blaw-Knox 180-ton four-compartment bins from an inclined belt conveyor. This is loaded in a tunnel located under enormous aggregate stockpiles. Bulk cement is delivered to the plant by truck in 30-barrel containers and is elevated into the Blaw-Knox 300-barrel cement bins. The cement is batched with motor-driven screw feeders into automatic weighing batchers. The aggregates are batched manually through four-material, beam-scale weighing batchers. Of the two plants, one has a dual drum 34-E paving mixer beneath it for the production of ready-mixed concrete for short-haul delivery. The other plant is used to charge truck mixers.

# Ready-Mix Co. Reports Benefits Gained By Use of Cement-Dispersing Agent



General view of the plant show, left to right, building where admixture is stored and prepared aggregate batching plant, bulk cement batcher.

another ON THE SPOT report

NOTABLE among ready-mixed-concrete manufacturers who have employed admixtures in making their products is the McClain Sand Company of Morgantown, West Virginia. This concern has been producing and selling concrete —at first central-mixed and more recently transit-mixed—for more than a score of years. After some months' experience with the use of a cement dispersing agent, Pozzolith, by adding it in dry form to their concrete mixes, it was decided about a year ago to install automatic dispensing equipment which first dissolves the soluble Pozzolith and then introduces this solution into the concrete mix. According to the classifications set up in the Journal of American Concrete Institute, November, 1944 issue, "Admixtures for Concrete," by A.C.I. Committee 212, Pozzolith may be defined as a water reducing agent and air entraining agent. The practice of the McClain Sand Company and the results it has obtained will be of interest to other ready-mixed-concrete producers as guides to what may be expected through the use of a specific cement dispersing agent.

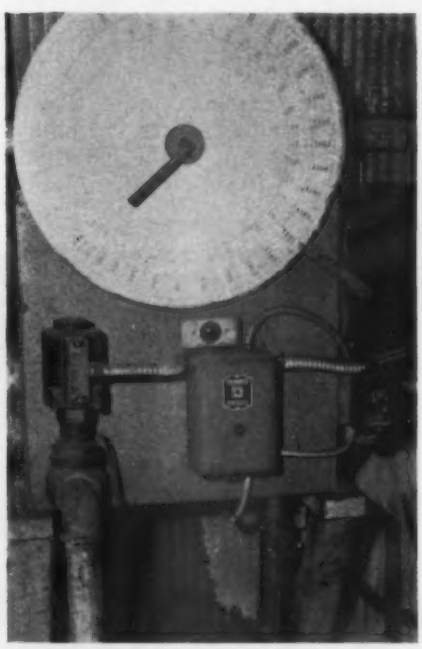
Studies of the hydration of Portland Cement[1] have indicated that not more than 50 per cent. of the cement in concrete is hydrated at 28 days, even under ideal curing conditions. This low efficiency is caused by the flocculation or bunching together of the cement particles, with the result that the surface area of the cement particles exposed to the water in the mix is greatly reduced. The primary function of Pozzolith, which is used in solution in the mixing water, is to deflocculate or separate the cement particles and other fine constituents in order to maintain the maximum possible surface exposure. The dispersing agent accomplishes this by imparting a negative electric charge to the surface of the particles, which, in the charged state, repel one another instead of clumping up or flocculating. This dispersion is also accomplished in a lesser degree by the adsorption of the agent on the surface of the particles, forming a protective colloid which reduces the adherence of the particles to one another as they collide. Surface tension is also somewhat reduced, causing mild air-entrainment.

Two 500-gallon steel tanks are used by the McClain Sand Company for preparing the Pozzolith solutions —one for standard mixes, the other for high-early strength concrete. The mixing procedure consists of half filling the tank with water, adding the full quantity of Pozzolith (11—50 lb. bags), and finally adding water to fill the tank. The material goes into solution quickly without agitation of any kind. In preparing the high-early strength solution, 26—50 lb. bags of high-early-strength Pozzolith are emptied into

**By WILLIAM M. AVERY**

the other tank which is then filled with water as in making the standard Pozzolith solution.

It is not necessary to use the entire contents of a tank before replenishing the solution, and this ability to restore the level of the solution in the tank at any time without draining it makes the preparation of solutions quite easy. Tables are available showing the amounts of Pozzolith required to refill the tanks



The mechanical dispenser quickly and accurately introduces a predetermined amount of liquid dispersing agent into the mixer trucks.

from any level, using as a guide the distance in inches from the top of the tank to the level of the liquid in it.

The tanks and the storage space for the admixture materials are in a separate small building near the batching plant. A small pump located below the tanks pumps the desired solution to the operating floor of the Butler plant for batching ag-

[1]See Anderegg and Hubbell, American Society for Testing Materials, 29-II. 554 (1929). —Ed.

gregates; a 3-way valve between the tanks and the pump makes it possible to change from the standard to the high-early-strength solution in about one minute.

To introduce the admixture, the operator sets an indicator on the mechanical Pozzolith dispenser, which has a special dial graduated in bags or pounds of cement to be used, presses a push button, and the required amount of solution flows from a small steel box below the dial through an Asco solenoid valve directly into the truck-mixer. When the addition has been completed, a Cramer single-pole, double-throw timing switch automatically starts up the pump in the mixing building to refill the box preparatory to loading the next truck-mixer. In practice the operator presses the push button and opens the gates on the weigh boxes at about the same time so that the Pozzolith solution and the aggregates flow into the truck-mixer simultaneously.

Technicians of The Master Builders Company, after studying the aggregates used in McClain's ready-mixed concrete operations, set up standards for the plant to observe in proportioning various mixes. For example, a 1:2:3 mix. using ¼- by 1½-inch gravel, calls for 564 pounds of cement, 3 gallons of liquid Pozzolith (or 6 pounds of dry Pozzolith), 1,260 pounds of sand, and 1,965 pounds of gravel. When using liquid Pozzolith this mix requires 27 gallons of water, while with dry Pozzolith the amount of water required is 30 gallons. In either case the total amount of water used in the mix is about 6 gallons less than would be required without Pozzolith. In the example given it should be noted that the required amount of Pozzolith would be added by setting the indicator on the mechanical dispenser at 564 pounds (*i.e.*, the amount of cement to be used in the batch).

A typical revision in concrete mixes when using plain concrete versus Pozzolith concrete to produce equal or higher strength concrete with increased durability is as follows:

| Strength 4000 Pounds | Plain | Pozzolith |
|---|---|---|
| Slump, inches .... | 6 | 6 |
| Cement, pounds ... | 644 | 547 |
| Sand, pounds ..... | 1372 | 1373 |
| Aggregate, pounds.. | 1710 | 1855 |
| Water, gallons .... | 41 | 35 |
| Pozzolith, pounds.. ... | | 3.5 |

To make high-early strength concrete in a 1:2:3 mix with the same aggregates 1 additional sack of cement would be used and the dispenser dial would be set at 658 pounds with high-early-strength Pozzolith in the pumping circuit. This amount of cement was required in their plain mixes prior to the use of Pozzolith and now, with the addition, of high-early Pozzolith produces high-early-strength concrete.

The use of a single admixture to produce air-entrained, water-proofed and high-early strength concretes has the obvious advantage of eliminating the necessity of providing additional bin capacity for special cements, or of storing and introducing such cements by costly hand methods.

The McClain Sand Company re-

Two 500-gallon steel tanks are used for preparing the standard and the high-early strength solutions.

ports average savings of approximately 25 cents per cubic yard of plain concrete and 50 cents per cubic yard of high-early-strength concrete produced since it began using Pozzolith a year ago. On a 1:2:3 mix it effects a saving of about 1 sack of cement per cubic yard of concrete by using Pozzolith. It reports obtaining higher compressive strengths on both standard and high-early-strength mixes since its adoption of Pozzolith. Tests made at 14 days run 600 to 800 pounds higher than those of ordinary concrete, and the company's customers are well pleased with the finishing qualities of the material.

The use of Pozzolith requires no special practice or procedure in the operation of the truck-mixers. The McClain Company operates seven 3-cubic-yard Jaeger truck-mixers, 1 2½- and 3 2-yard mixers, and it still follows the general practice of not introducing water and not starting the mixing until the trucks are about a mile from the job. A 275-barrel Heltzel bulk-cement plant, equipped with a Kron 1,000-pound springless scale, is located next to the aggregate bins in the company's yard. Sand and gravel are unloaded from barges at the company's dock into the Butler bins by means of a stiff-leg derrick.

The Master Builders Company has published the following description of its material: "Pozzolith in powder form is a combination of the

(*Continued on page* 102)

One of the company's trucks under the bins. The dispersing agent and the aggregates are introduced simultaneously.

# Block Plant Batching Equipment Made Available for Ready-Mix Operations

General view of the batching bins normally used in ready-mix operations.

## Unique Arrangement Provides 200-Cubic-Yard Reserve in Event of Breakdown or Unusual Demand

another ON THE SPOT report

ONE of the lesser nightmares that in some degree haunts all ready-mixed-concrete operations is the possibility of a breakdown occurring in the batching plant during a job which requires absolute continuity of delivery. While such mishaps are fortunately not of frequent occurrence, even one experience constitutes an overdose, and the wild gymnastics required to maintain deliveries are likely to produce premature evidences of senility among the personnel of the plant involved. An eastern plant visited recently, in which both ready-mixed concrete and concrete blocks are produced, has an interesting setup which makes it possible to utilize the 200-cubic-yard-per-day batching capacity of the block plant for the production of ready-mixed concrete at any time it should be required.

Although the regular batching plant is adequate for most pours, the extra capacity of the block plant has frequently been utilized to speed up deliveries on large pours, and under all conditions it is available on a moment's notice to back-up the normal facilities in the event of a breakdown.

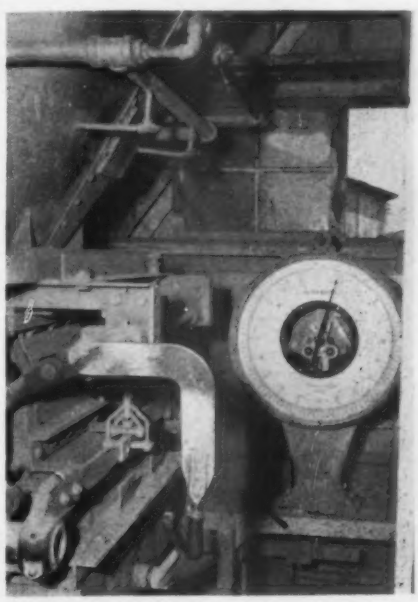
Richard Scully of Coatesville, Pennsylvania, the operator to whom we have reference, developed this unique arrangement largely as a result of having started in the ready-mixed-concrete business in 1939 with an existing block plant and a Jaeger 3-cubic-yard transit-mixer, but with no regular batching plant. To avoid the necessity of installing special batching equipment at that time, a Blaw-Knox weigh batcher was installed on a tramway below the four 45-ton bins in the block plant and sufficient track was provided so that the motor-driven batcher could discharge either into the 30-cubic-foot Blaw-Knox mixer above the block machine or through a steel chute directly into the truck-mixer. This arrangement not only worked satisfactorily, but it in no way handicapped block production, since the capacity of the weigh batcher was more than adequate for both operations. In the following year a second Jaeger 3-cubic-yard and a Smith 5-cubic-yard truck-mixer were purchased, and the three units were operated without any serious interference with block production.

By the spring of 1941, however, the war-construction boom in Chester County was in full stride, and it became necessary for the company to supply ready-mixed concrete on a much larger scale than was possible with the existing equipment. A Blaw-Knox batching plant for aggregates was accordingly installed, and a separate Heltzel bin with a Kron scale was set up adjacent to the aggregate bins to handle bulk cement. The aggregates are received in trucks and are dumped into a ground-level concrete hopper from which they are elevated to the 105-ton 3-compartment bin. For emergency purposes, a stock-pile of about 4,000 tons of sand and 1,000 tons of stone is maintained in the yard at all times. When it becomes necessary to draw on the stock-pile, a ½-cubic-yard Insley crane is used for loading the material into dump trucks. Bulk cement is loaded into the 300-barrel Heltzel cement batcher by means of an under-track screw-conveyor and a bucket-elevator.

Since entering into large-scale ready-mixed operations in 1941, the company has added six truck-mixers to its original fleet of three: a 4½-cubic-yard Jaeger in 1941, two 3-cubic-yard high-discharge Jaegers, two high-discharge Ransomes and a Rex 3-cubic-yard high-discharge, all in 1942. A horizontal steam boiler supplies steam for heating water and aggregates during cold-weather operations.

The company's policy is to sell ready-mixed concrete only on a signed-contract basis, either on a guaranteed strength or to the customer's specifications.

The plant has produced a maxi-



View of the bulk cement batcher and the dial scale.

The block plant building and the block storage yard in foreground.

The concrete block office building adjoins a large warehouse used for storage of lumber and miscellaneous building materials.

mum of 521 cubic yards of concrete in an 8-hour day.

The company's experience in the block business dates back to 1915, when a small plant utilizing hand machines was operated at Pomeroy, Pennsylvania. A block plant was erected at the present location in 1925, and the business was expanded to cover a wide range of building materials. Both cinder and concrete blocks are produced at the present time on a Stearns No. 7 Joltcrete machine which was installed in 1937. The aggregates are brought to the plant by both railway cars and trucks and elevated to the four 45-ton overhead bins. The cement for the block plant is handled in bags brought in from a railway siding which is at the mixer floor level in the rear of the building. In addition to the Blaw-Knox batching and mixing equipment, which has already been described, there is a National meter mounted on the mixer for the accurate measurement of mixing water.

The plant can produce about 2,200 standard 8- by 8- by 16-inch units in an 8-hour day. The blocks are steam-cured for a period of 18 hours before being stored in the yard. A Lewis-Shepard jack-lift truck is used for handling the wooden racks. Deliveries within a 15-mile radius are made with the company's fleet of six trucks.

Richard Scully, Jr., is president of the firm and G. B. Kingsbury is vice-president.

The weigh batcher travels on tram rails, and can discharge either to the mixer or to mixer trucks on the ground floor of block plant.

---

**Ready-Mix** (*from page* 100)

cement-dispersing agent, calcium-lignosulphonate (a colloidal electrolyte), the accelerator (calcium chloride), and the pozzuolana (low-carbon fly ash)."

High durability is produced in concrete mixes containing Pozzolith by its ability to reduce substantially the amount of excess water in the mix while still retaining the desired placeability. This reduction of excess water also serves to distribute the voids so that they are reduced in magnitude and are not connecting. Its secondary effect of increasing the air content of most normal mixes by about 2 per cent. also assists in increasing resistance to freezing and thawing cycles and corrosive solutions. This is substantiated by tests made by the nation's highest testing authority which show that Pozzolith mixes are 400 to 500 per cent. more durable than similar plain concrete mixes. These tests also show that the use of cement dispersion causes the entrainment of the optimum amount of air in concrete regardless of the brand of cement. It has been McClain's experience that through the use of Pozzolith greatly increased durability can be secured in their concrete mixes without requiring the control and supervision necessary with foaming type air-entraining agents, and that there is no sacrifice in strength such as normally accompanies air-entrainment.

The 1,000-pound dial scale in the bulk cement plant.

Pozzolith concrete mixes show considerably less shrinkage than comparable plain concrete mixes, probably in part due to the reduction of unit water content and in part because cement dispersion and moderate air-entrainment produce a more cohesive concrete which restricts the movement of water from one part of the mix to another. Reduced permeability is claimed for Pozzolith concrete as a secondary effect of reducing by approximately 15 per cent. the amount of cement required in conventional mixes. By thus lowering the heat of hydration and the resulting thermal stresses, the tendency of the concrete to crack is said to be materially reduced.

Eventually there will be interest in the use of Pozzolith in central-mixing operations with dump-truck delivery. The McClain Sand Company has equipment for central-mixing and definitely expects to supply concrete in dump trucks to the city of Morgantown after the war. Wider application of the practice will, of course, depend entirely on what the consumers want, but in any case the company feels, after a year of experience, that Pozzolith has become a permanent part of its operations.

# Interlocking Units Featured At New California Plant

General view of Mortarless plant, with units stockpiled in foreground.

another ON THE SPOT report

ONE of the neatest and best-designed small concrete-products plants this writer has observed is the new installation, at Montebello, California, of the Mortarless Building Material Company. The plant

Operating the block machine. Batch box, mixer and feed table also are shown.

went into operation in February, 1945, producing the several sizes of concrete block popular in the Los Angeles area. It is the only products plant in suburban Montebello and is only 9½ miles from downtown Los Angeles. Its market area includes eastern and southeastern Los Angeles and the many residential communities of the San Gabriel Valley. The owners of the new venture—Roy Schiefla and John J. Jensen—plan to handle a variety of other building materials a little later on.

The plant building is 30 by 66 feet in ground area and is roofed and partially enclosed with corrugated sheet metal covered with micatized asphalt. The floor of the plant and the entire 100- by 140-foot rectangular yard area are paved. The entire property is fenced in with 6-foot steel-mesh fencing topped by barbed wire.

Aggregates and cement are purchased from the Blue Diamond Corporation of Los Angeles, the two sizes of aggregate—pea gravel and plaster sand—being dumped by the Blue Diamond trucks into the two compartments of the 160-ton concrete storage hopper which is below ground level. Each compartment has three sloping sides with a vertical center partition. In the space about 4 feet wide formed by the vertical partitions, a 35-foot belt-bucket elevator operates to carry the aggregates up to the plant bin. Manually-controlled gates in the bottoms of the vertical partitions admit the aggregates to the boot of the elevator.

The overhead bin, of steel construction, has a storage capacity of 20 tons of aggregates, being divided into two compartments for the storage of the sand and pea gravel. A flop gate controlled by wire from the ground diverts the elevated aggregate into the proper compartment.

A batching box of 6 cubic foot capacity is located just above the mixer on the mixing platform, which is 4½ feet above the level of the production floor. Both the measuring box and the mixer were designed by Mr. Schiefla and built in a welding shop. The sacked cement is stored in a room whose floor is on the same plane as the mixing platform, making it convenient to add the cement at the mixer, and just as convenient to unload it from trucks through a door on the north, or opposite, side of the building.

Proportions of 70 per cent. sand and 30 per cent. gravel are normally used in the batch. After mixing, the

**By HARRY F. UTLEY**

concrete is discharged as needed, through a side gate in the mixer drum, to a feed table 3 feet above the plant-floor level where it can conveniently be fed to the two Gorilla Press block machines. These are hand-operated units each equipped with two long levers for compacting the concrete under heavy pressure from both top and bottom of the mold. They are manufactured by the Mortarless Tile Machine Company of Los Angeles and are not purchased outright but installed on a royalty basis. Cast-iron cored pallets are used.

The freshly-made units are placed on 4-row racks, fabricated from angle iron by welding, handled to and from the yard by a Yale &

The 160-ton concrete storage hopper, elevator and bin.

Towne lift-truck. They are sprinkled with water frequently to insure thorough curing while in storage in the yard.

A 10-horsepower U. S. motor and reduction gear drives the mixer and a 2-horsepower U. S. electric motor and reducer are used on the elevator. Cutler-Hammer push-but-

(*Continued on page* 106)

# Producers' Problems Considered at Ready-Mixed-Concrete Session

another ON THE SPOT report

IN order to give prompt consideration to the problem created by the interpretations of the applicability of the Fair Labor Standards Act to the ready-mixed-concrete industry issued during April by Wage and Hour Administrator L. Metcalfe Walling (reported in PIT AND QUARRY for May), a special meeting of the members of the board of the National Ready Mixed Concrete Association with the executive committee of the National Sand & Gravel Association was called for May 8 in Chicago. The action taken by the two groups with reference to this problem is reported elsewhere in this issue (page 66) in an article dealing with the joint sessions. On the following day, May 9, the board of the ready-mixed-concrete association held a separate meeting attended by 20 representatives of member companies.

### Air-entrained Concrete

Director of Engineering Stanton Walker presented and commented on a *Progress Report on Studies of Concrete with Entrained Air* prepared by him and Delmar L. Bloem, associate research engineer of the association. Mr. Walker explained that this study parallels to a large degree similar studies made by the Corps of Engineers and the Portland Cement Association. Since the tests are still in progress, the report pointed out that the results obtained are too meager to point to firm conclusions except the obvious one that the entrainment of air permits of reduction in the quantity of mixing water and that, except possibly in the case of lean and harsh mixes, results in reductions in strength.

There followed some discussion of pouring ready-mixed concrete for road slabs, in the course of which it was brought out that excellent results are being obtained in delivering air-entrained concrete for road work. It was felt by some that the use of air-entrained concrete may bring about a relaxation of the demands now made for sand-grading.

The use of dump trucks for delivering ready-mixed concrete was discussed and the opinion was expressed that the use of air-entraining agents somewhat broadens the type of work in which such transportation methods could be used. However, it was pointed out that it is necessary to restrict the type of mix and the length of haul to avoid undue segregation. One producer told of having hauled concrete made with 1½-inch gravel and air-entraining cement over distances as great as 28 miles with satisfactory results. Another reported successful deliveries having been made up to 12 miles.

The Committee on Truck Mixer and Agitator Standards of the association, which includes in its membership all the manufacturers of truck-mixers, recommended that no changes be made in the concrete association's standards. The question had arisen because of the recently promulgated standards of the Truck Mixer Manufacturers' Bureau, which differs from the association's standards in many details. However, it was pointed out that the association's standards are not inconsistent with the mixer-bureau standards and, also, that they cover many phases of operation not touched on by the bureau standards. Further, the mixer-bureau standards cover sizes of truck-mixers not yet manufactured.

Attention was called to the major revisions in the second edition of the association's book on *Control of Quality of Ready Mixed Concrete*, which is now in the hands of the printer. It will give more detailed treatment to the design of concrete containing entrained air. It will include a new chapter on the handling of concrete after delivery to the consumer. With respect to the use of non-agitating equipment for the delivery of concrete there will be incorporated a statement saying, in effect, that satisfactory use of non-agitating equipment can be made when conditions are favorable. At this point Harry F. Thomson (General Material Company) advocated an extension of the association's research program.

### Nominating Committee

A nominating committee appointed by President Alexander Foster, Jr., and consisting of Stephen Stepanian (chairman), James F. McCracken and Joseph H. Dixey offered as candidates for the executive committee of the association the names of Edward J. Nunan (Buffalo Slag Company), Thomas E. Popplewell (Fort Worth Sand & Gravel Company, Inc.), Julius Warner (Richter Concrete Corporation), and C. Dolly Gray (Ready Mixed Concrete Corporation) to serve with the officers as members of that committee. Their election was voted unanimously.

### Rural Market

At the lunch William E. Kaiser, head of the Farm Bureau of the Portland Cement Association, spoke briefly about the opportunities for the sale of ready-mixed concrete to farmers. He pointed out that the average farmer has little labor with which to make improvements but much money available for them and for this reason prefers ready-mixed concrete. Some ready-mixed-concrete manufacturers, he said, are getting more than one-half of their new orders from farmers. Paved barnyards, feed troughs and driveways are the types of construction that interest the farmer most. Mr. Kaiser spoke also of the Portland Cement Association's series of advertisements designed to interest farmers in the advantages of ready-mixed concrete.

### Thomson, Ahearn Report

Mr. Thomson was asked about the progress of the committee which he heads and which was set up to investigate the possibilities of inaugurating a safety-contest program among ready-mixed-concrete manufacturers. He reviewed briefly the conditions peculiar to the industry which necessitates the adoption of a different approach to the problem of a safety contest—the accidents which may happen to employees within the plant, liability to the public on account of personal injuries caused by delivery trucks, property damage to equipment, collision damage, etc.

That the public-liability hazard is a real one was demonstrated by Mr. Ahearn, who referred to a bitter editorial campaign carried on by a big-city newspaper as the result of the death of two children caused by two ready-mixed-concrete delivery trucks operating in that metropolitan area.

Mr. Ahearn repeated his former statements regarding the attempts being made to classify the ready-mixed-concrete industry as a part

of the construction industry and warned those present against believing the claims made by those who seek to raise the wages paid by members of the concrete industry to the levels prevailing in some areas in the construction industry. He pointed out that, unless a ready-mixed-concrete producer does actually perform contracting work, he is not covered by the Bacon-Davis act which deals with the construction industry. In answer to a question, Mr. Ahearn said that the ready-mixed-concrete industry is not under the Trucking Commission, which controls long-distance trucking over the highways, but under the National War Labor Board, whose regional boards have Trucking Panels which are in no way related to the Trucking Commission.

Speaking of the scarcity of new equipment, Mr. Ahearn said that 1½-cubic-yard shovels are still hard to get. Now appears to be a good time to approach the War Production Board for new equipment other than that under special controls (such as trucks, cranes, etc.). The passing of V-E Day makes it seem reasonable to expect that truck tires should be a little easier to obtain because the Pacific war will not utilize rubber-tired equipment to the extent that was necessary in the European war. Applications from ready-mixed-concrete manufacturers for new equipment needed for replacement, repair, reconstruction and rehabilitation should, as a result, be well received and more favorably acted upon, provided, of course, that the need can be supported. Mr. Ahearn said that the ready-mixed-concrete industry had been cut down 25 per cent. on its steel requirements for the second quarter of 1945 because of the coal shortage, but that this situation has eased somewhat.

Concrete manufacturers will be well advised to exercise caution in buying surplus property offered for sale by the government. Mention was made of a case in which a producer purchased at 75 per cent. of its value a crusher which was represented as being in first-class condition. After accepting delivery of the machine the purchaser discovered that it was actually in bad condition and that he was forced to spend $2,000 to have it put in good working condition. The machine should have been priced on the basis of 55 per cent. of its original value.

Mr. Ahearn said that the Office of Price Administration is engaged in making "spot" studies in areas where cement prices have not yet been increased in an effort to learn whether price increases are necessary, whether such increases if approved could be absorbed by the cement manufacturers' customers or whether it would be necessary to give such customers the right to adjust their prices to take care of such increases.

The War Production Board, it was said, is well aware of the necessity for immediate resumption of construction to provide employment for those released by cut-backs and those returned to civilian life as the result of the end of the war in Europe. In any relaxation of present limitations on construction to be made by the W.P.B. it is expected that highway and street construction will probably be the first activity to be benefitted by the removal or lightening of controls.

### Members Present

The following members, employees and guests of the association were present:

Ahearn (V. P.), National Ready Mixed Concrete Association, Washington.
Clark (Claude L.), Ohio Sand & Gravel Association, Columbus, O.
Davison (E. K.), J. K. Davison & Bro., Pittsburgh.
Davison (George McC.), J. K. Davison & Bro., Pittsburgh.
Davison (Harry S.), J. K. Davison & Bro., Pittsburgh.
Devine (B. F.), Chain Belt Co., Milwaukee.
Dixey (Joseph H.), J. H. Dixey Co., New York.
Foster, Jr. (Alexander), Warner Co., Philadelphia.
Giles (William S.), Iron City Sand & Gravel Co., Pittsburgh.
Graham (Paul C.), Graham Brothers, Los Angeles.
Gray (C. Dolly), Ready Mixed Concrete Corp., Indianapolis.
Hagen (Frank), Graham Brothers, Los Angeles.
Helkemeier (Louis G.), Chain Belt Co., Milwaukee.
McCracken (James F.), American Builders' Supply Co., Louisville.
McLean (R.), Jaeger Machine Co., Columbus.
Nordberg (Bror), *Rock Products*, Chicago.
Nunan (Edward J.), Buffalo Slag Co., Buffalo.
Pelsue (H. F. Garvin), Metropolitan Sand & Gravel Corp., New York.
Peters (H. C.), T. L. Smith Co., Milwaukee.
Phillips (Stanley A.), *Pit and Quarry*, Chicago.
Popplewell (Thomas E.), Fort Worth Sand & Gravel Co., Inc., Fort Worth.
Porter (Robert F.), Harry T. Campbell Sons Corp., Baltimore.
Prince (John), Stewart Sand & Material Co., Kansas City, Mo.
Shirey (Charles W.), C. W. Shirey, Waterloo, Ia.
Spratlen, Jr. (F. P.), Spratlen-MacDougall, Inc., Denver.
Stepanian (Stephen), Arrow Sand & Gravel Co., Columbus, O.
Thomson (Harry F.), General Material Co., St. Louis.
Walker (Stanton), National Ready-Mixed Concrete Association, Washington.
Warner (Julius J.), Richter Concrete Corp., Cincinnati.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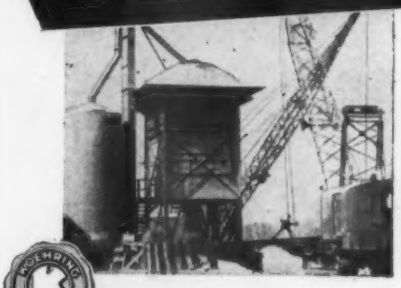

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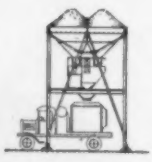
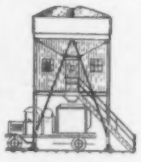
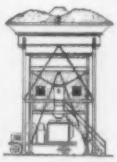
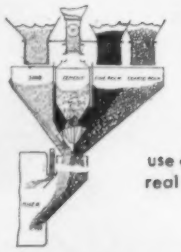


At left—basic 30-yard bin with 2 or 4 compartments. Below (at left)—Next step—60-yard with 4 compartments. Very *flexible*—The 4 compartments may be used for 2, 3 or 4 aggregates without any change of partitions. Central cement compartment may be added at any time.



120-yard plant is shown at right, the one you will need when your contractors call for concrete in a hurry. With this "Step-by-Step" plan, you make a safe, profitable investment.





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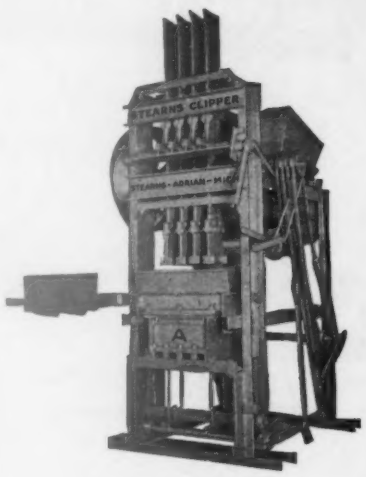


The Clipper Stripper, shown above, available in 5 models, is only one of the popular machines in the ANCHOR Line of Complete Equipment for the Concrete Products Plant. ANCHOR Engineering Service in the design of new plants or revamping older operations is nationally famous. Consult us before you buy equipment or modernize your plant . . . it costs no more.

Hobbs block machines, Anchor tampers, Anchor, Jr. strippers, Stearns power strippers and Jolterete, Stearns mixers and pallets, Straublox oscillating attachments, etc. Repair parts for: Anchor, Ideal, Universal Stearns, Blystone mixers and many others.

ANCHOR CONCRETE MACHINERY CO.
G. M. Friel, Manager Columbus, Ohio


## Interlocking (*from page* 103)

ton switches control the two motors.

The primary feature of the Mortarless system of construction is that the blocks, being interlocking, are laid in the wall without mortar. Within the wall, vertical concrete columns reinforced with two steel rods, are poured through the core openings and spaced 24 inches apart. A reinforced-concrete bond beam is placed around the walls at window sill and ceiling levels using special Mortarless bond-beam blocks. For residential construction exterior walls are usually built of 8-inch blocks and partitions of 6-inch units. The construction methods employed, as well as the units themselves, are approved for resistance to earthquakes.

Only gravel blocks will be made for the present but, later on, the company plans to use a light-weight aggregate in the development of which Mr. Schiefla is actively interested and about which he promises to have more to say a few months hence.

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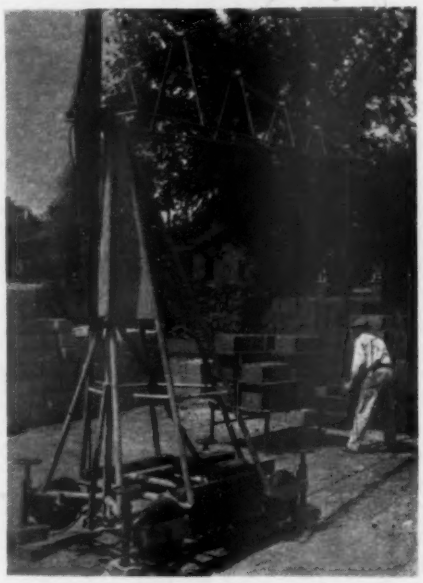
At Mount Carmel, Illinois, a new concrete block factory recently began operating under the name of the Mount Carmel Concrete Plant.

## ● Yard Hoist

The Southern Cast Stone Company of Knoxville, Tennessee, has developed a pneumatic portable yard machine, known as the Warren Yard Hoist, which expedites and simplifies the problems of handling concrete blocks in the yard. In addition to reducing the work of unloading racks to a one-man operation, the machine is said to reduce handling breakage to the very miniuum and to satisfy most of the objections that have been raised to the heavy physical work required in this important part of the operation of block plants.



View of the hoist in operation at the company's plant in Knoxville, Tenn.

The sturdy frame, consisting of 1½- and 2-inch standard pipe, welded, is mounted on four rubber-tired wheels for ease of movement, but in operation the load is carried to the ground by four screws to assure a solid bearing. The machine employs a 3-inch air cylinder with a 3-inch stroke for clamping together three 8- by 8- by 16-inch units, or 4 6-inch, 6 4-inch, or 8 3-inch units. The entire clamping device is free to rotate about a horizontal spindle and is suspended by a 2-inch vertical hoisting cylinder which has a 6-foot stroke. Both cylinders are of the single-acting type, air being admitted by 2 triggers on the right hand-grip and released by means of 2 triggers on the left hand-grip. The length of the hoisting stroke is easily controlled by the amount of pressure applied on the trigger and the clamping cylinder is spring-loaded for releasing.

The Warren Yard Hoist was developed by Millard R. Warren of the Southern Cast Stone Company solely for use in its own operations, but the machines are now being built for general sale in response to many requests from other block producers. The company rates the capacity of the machine at 1,000 8- by 8- by 16-inch units per hour, but in practice it has been found that experienced operators can far exceed this figure. The wide swing of the boom makes it possible to stack 1,500 blocks on a single set-up of the yard hoist, and only 3 to 5 minutes is required to move to a new position. The complete machine, including ballast, weighs 2,400 pounds.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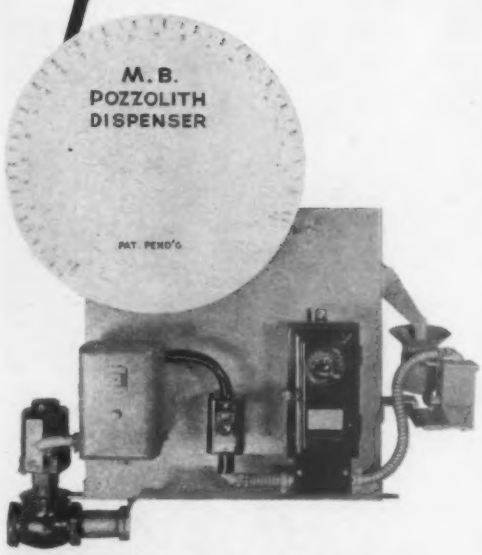


*With this M. B. Dispenser, that introduces Pozzolith solution in normal Portland cement concrete, you can produce durable, waterproof, scale-resisting concrete, with regular or high-early strengths, by simply setting a dial and pressing a button. (Patent Applied For.)

TYPICAL of the many ready-mixed concrete producers who are using Pozzolith in the automatic M. B. Dispenser to meet the new era demands of greatly increased durability with increased strength, and *at no extra* cost, is the McClain Sand Co. of Morgantown, West Virginia.

In addition to the important advantages of greatly increased durability with *increased* strength, Pozzolith used in the automatic introduction device* offers another outstanding advantage to ready-mixed producers: instead of having the expense and headaches of handling three or four kinds of special cements, you can make any concrete mix your customers order with normal Portland cement . . . plus Pozzolith!

Write to day for complete information on this modern ready-mixed method. Used by many leading dealers. Reduces work . . . fool proof . . . increases profits.

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# POZZOLITH
## CEMENT DISPERSION

## SOON CUSTOMERS will say "Don't you know the war's over?"

There'll come a day when customers will be in a rush for Ready-Mixed concrete. Be ready to supply them with Ready-Mixed made with Medusa "Medco" High Early Strength Cement—the concrete that gives 5 to 7-day strength in 24 hours. The time this cement saves on rush jobs warrants its use and, of course, your profits are a little higher. Get ready now to suppy customers with "Medco" Ready-Mixed.

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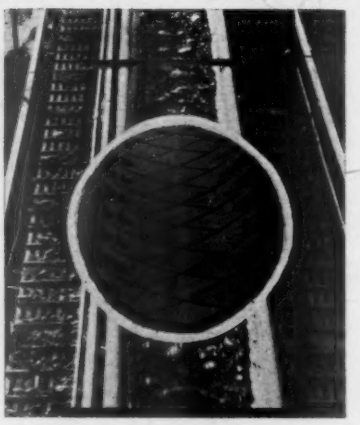
PORTLAND CEMENT CO.
1036 MIDLAND BUILDING
DEPT. A • CLEVELAND 15, OHIO

# AMERICAN LIGHTNING

*ribbed centre*

## CONVEYOR BELT



The patented pattern of this belt, enables it to carry even wet loads up improbably steep grades without slipping. It is possibly the best belt in the world for conditions where slipping is bad.

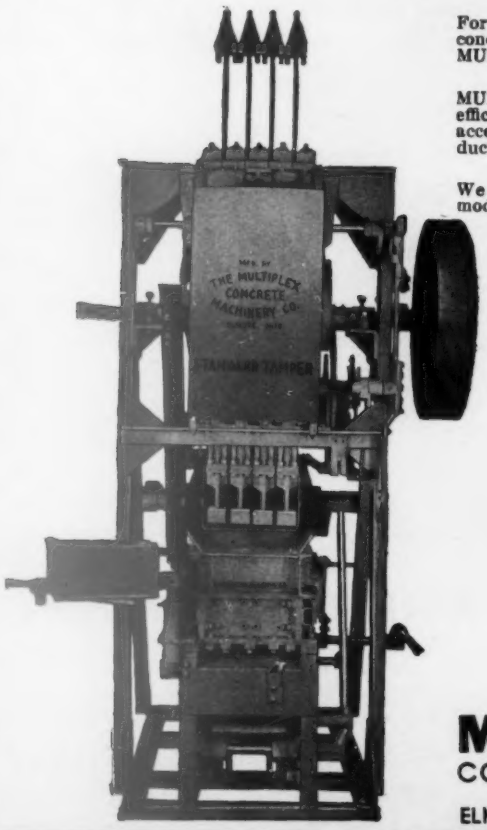
**The AMERICAN RUBBER Mfg. Co.**

PARK AVENUE AND WATTS ST.

OAKLAND 8, CALIFORNIA

RUBBER PRODUCTS *for* INDUSTRY

# MULTIPLEX Machines For Postwar Profits




For a Quick "Take-Off" and sustained pace in concrete block output, reserve one of the MULTIPLEX *high-speed* machines.

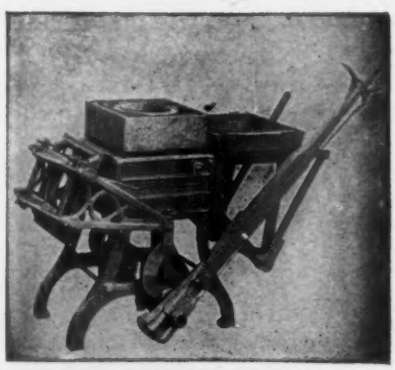
MULTIPLEX offers a wide variety of super-efficient mixing equipment, with all types of accessories necessary for economical mass production.

We can recommend MULTIPLEX units for modernizing your plant and enlarging its capacity.

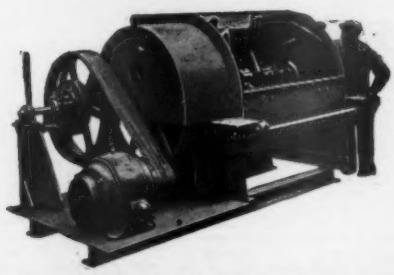
Our universal type MULTIPLEX Standard Tamper for making plain and stripper, or face blocks, on one base. Easily convertible as business expands. Supplied with 4-bar or 8-bar tamper, either power or hand operated.

Write for Booklet describing the MULTIPLEX complete line of concrete mixing equipment, including Double and Single Hand Press Strippers, Power Press Strippers, and Super-Tampers.

**MULTIPLEX**
CONCRETE MACHINERY CO.
Frank Muenzer, President
ELMORE • OHIO



The MULTIPLEX Flue Block Machine makes ventilated, solid or lightweight units, including all attachments for ventilator and stove pipe openings.



MULTIPLEX Multi-Mixer with reverse screw-type action insures fast and thorough mixing of every batch. Side, end or bottom discharge.

3 CU. YD.

# In comparison with Jaeger's "SPEED MERCHANT" ANY OTHER TRUCK MIXER IS 5 YEARS OLD

2 CU. YD.

## THESE FEATURES ARE OBSOLETE TODAY

- Movable Hoppers and Hopper Seal Troubles
- Top-Heavy Overhead Water Tanks
- External Drum Gears and Power Drive Alignment Problems
- Vital Parts Exposed to Dirt and Weather
- Inaccessible Internal Reversing Clutches
- Awkard Chute Hangers
- High Center of Gravity, Etc., Etc.

"HI-DUMP" OR "LOW CHARGE": The improvements shown in these HI-DUMP models are also available in "LOW CHARGE" types up to 5½ cu. yd. sizes.

4½ CU. YD.

If you want the public to know that you intend to maintain up-to-date "ready-mixed" service in your community, the quickest way to tell them is to put one of these 1945-model Jaegers on the street. In appearance, in construction and in speed and efficiency of operation, they make previous truck mixer designs completely out-of-date. Talk to your Jaeger distributor or write us for new Catalog TM-5.

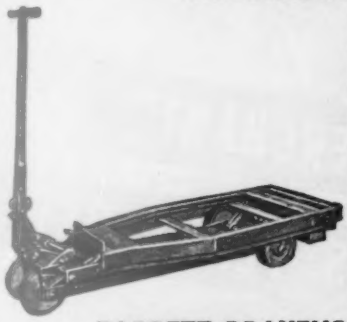
## THE JAEGER MACHINE COMPANY

Main Office and Factory, Columbus, Ohio

REGIONAL OFFICES: 8 E. 48th St. NEW YORK 17, N. Y. · 226 N. LaSalle St. CHICAGO 1, ILL. · 235-38 Martin Bldg. BIRMINGHAM 1, ALA.

# BARRETT LIFT-TRUCKS

## ONE MAN HANDLES 48 BLOCKS NO BREAKAGE



Handle your green concrete products the way that more than 800 other concrete products plants do, WITH BARRETT LIFT-TRUCKS EQUIPPED WITH A SUPER-SPRING FRAME AND RUBBER TIRES. Eliminate breakage—joggling out of shape and spoilage. Save time, money and labor by eliminating all unnecessary handling and breakage. Take your blocks direct from the machine to the curing room—with ease and dispatch. One man handles 48 blocks of the 8x8x16 size—or, 32 blocks of the 8x12x16 size.
Write for illustrated circular.

**BARRETT-CRAVENS COMPANY**

3251 West 30th Street CHICAGO, ILL.
Representatives in all principal cities

# REFINEMENT in FEED

GIVES

# ACCURATE MEASUREMENTS

of cement and aggregates by agitators in material hoppers plus thoroughness of mixing insure perfect concrete blocks.

# KENT

Continuous Mixer

KENT Two Hopper No. 2½ Mixer. Capacity, 8 cubic yards per hour.

Write for Bulletin

The KENT Mixer is an automatically operating precision machine that supplies a continuous stream of perfectly processed concrete. Just keep the hoppers full, and this unit will set a new production record and profit pace for your block machines. Requires no attention. Durably built for years of low cost service. Several sizes.

**The KENT MACHINE CO., Cuyahoga Falls, Ohio**

You will sell your

Surplus equipment

Faster through the

Pit & Quarry

Broadcast Section

Send for Our Rate Card

# CONCRETE BURIAL VAULTS

***America's Finest Molds and Lowering Device***

•

TERRITORY FRANCHISES

**BERG VAULT CO.**

EQUIPMENT DIVISION
1620 LUCAS HUNT RD.
ST. LOUIS, MO.

# STERLING BABBITT

**For Crusher Bearings**

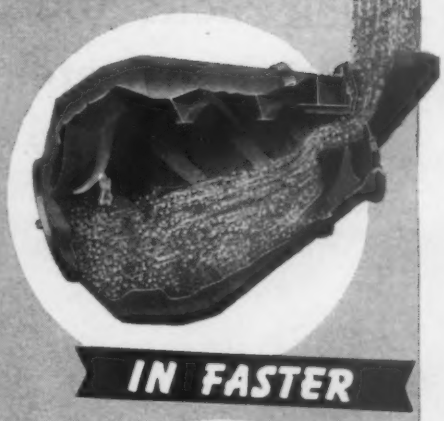
Bronze Inner and Outer Eccentric Bushings

**Countershaft Bushings**
**Socket Liners**

# ZINC SPELTER

**THOS. F. SEITZINGER'S SONS**
P. O. Box 1336 ATLANTA 1, GA.

# Save HOURS on Every Concrete Job with SMITH-MOBILE



IN FASTER

OUT FASTER

IN THE FORMS FASTER

Time is money! SMITH-MOBILE delivers more loads of uniformly mixed concrete per day than any other truck mixer on the market. Here's why —

**FASTER CHARGING** — Operator stays in cab. No hatch to open, clean and close again. Aggregates drop vertically into big, roomy feed chute and continue by gravity at high velocity toward opposite end of drum. No shafts or rods to clog up chute. Fastest loading cycle on the market.

**FASTER MIXING** — Drum rotates during charging operation. Shrinking and mixing start the instant a batch enters drum. This means faster and better mixing, also increased drum capacity. And while mixing, you can look into drum and SEE what's going on. No inspection delays.

**FASTER DISCHARGE**—Open sealing door as far as you wish, and reverse rotation of drum. Instantly the uniformly mixed concrete is discharged by gravity . . . as fast or slow as you want it . . . any quantity you desire. The speed of the drum controls the speed of discharge.

**FASTER DISTRIBUTION** — Smith-Mobile's high discharge permits steeper and longer distributing spout. Eliminates need for hoist or ramp, yet provides maximum radius of distribution. Even dry concrete can be poured directly into high forms, without pushing concrete down chute. More time saved!

Yes sir — SMITH-MOBILE is faster all the way. It will pay you to investigate. Write for Catalog No. 198-C.

**THE T. L. SMITH COMPANY**
2887 N. 32nd Street, Milwaukee 10, Wis., U. S. A.

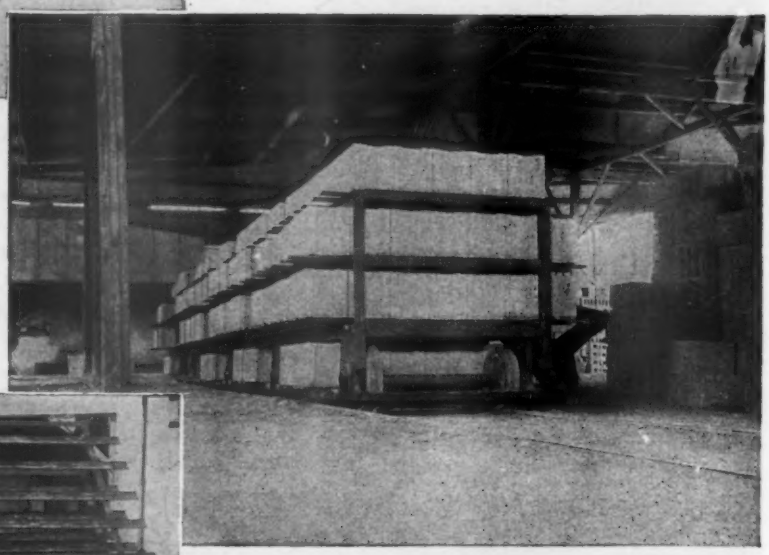
*The Original High Discharge*
**TRUCK MIXER and AGITATOR!**

# CHASE

... for 35 years the leading maker of lift-truck racks and cars for the concrete products industry

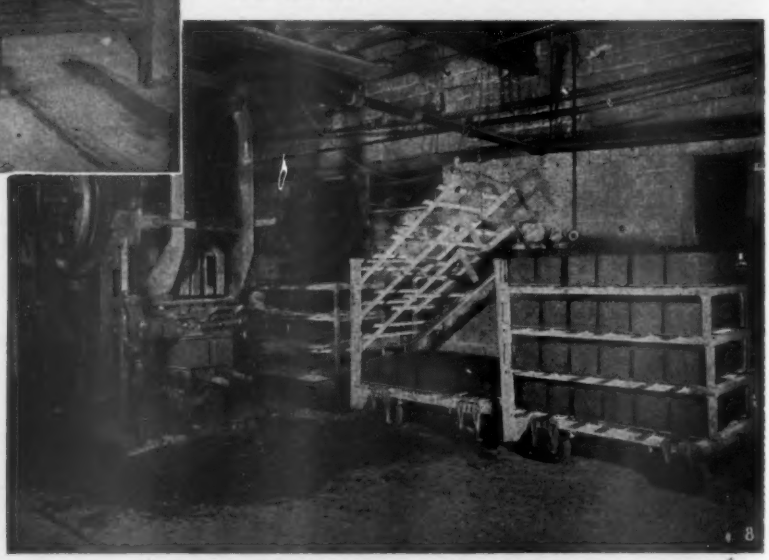
ABOVE — Chase Style 2167 Lift-Truck Racks with steel decks in the block plant of the Currier Lumber Co., Detroit, Michigan.

RIGHT—Chase Style 198 Block Cars for high-pressure steam curing at L. G. Randolph Concrete Products Company plant, Ann Arbor, Michigan.



LEFT—Chase Style 294 Hinged-deck Lift-Truck Racks in the block plant of the Cleveland Builders Supply Company, Cleveland, Ohio.

BELOW—Chase Style 293 Hinged-deck Block Cars in service at Edmonds Art Stone Company, Washington, D. C.



Any Style or Design Lift-Truck Rack or Car for Your Plant

•

WRITE FOR CATALOG

**THE CHASE FOUNDRY & MANUFACTURING CO.**

**Columbus 7, Ohio**

# *Here a new science attacks an old problem*

Cylinders in engines usually get a pretty raw deal. They have to take more grueling punishment than any other part of the engine. They . . . and the rings . . . bear the brunt of the blame when engines lose power.

Here, in the Van der Horst Research and Engine Testing Laboratories, we are continuously attacking this old problem of wear. The new science of PORUS-KROME processing is attuned to the needs of the various types of engines. Tests are run in several types of engines to determine the degree and type of porosity which will give the maximum wear resistance. Every development or change in PORUS-KROME processing is forthwith scrutinized by the "Lord High Inspector" . . . *the engine.*

Let's work out *together* a square deal for *your* cylinders. Our engineers will gladly develop with your engineers the specifications which will multiply cylinder life 4 to 20 times . . . ring life 3 to 5 times. The entire facilities of these laboratories are committed to solving the problem of cylinder wear for engine manufacturers.

Even though building of engines for general use is still restricted, it is none too soon to plan for the use of PORUS-KROME in postwar engines. A request from you will bring complete information about PORUS-KROME. *Van der Horst Corporation of America, Olean, New York, Cleveland 11, O.*

**PORUS - KROME . . . *Good for the Life of your Engines***

# COYOTE TUNNEL SHOOTING

**safer...quicker...easier with**

# "NITRAMON" C

**Here is the ideal** blasting agent for use in coyote tunnels.

"Nitramon" C is the safest known blasting agent today. Tests and years of actual use have proved it. You cannot detonate it by rough handling, falling rocks, drill steel, tools, flame, friction or ordinary commercial blasting caps. Yet you can fire it readily with "Nitramon" Primer, itself relatively insensitive.

*"Nitramon" C should always be detonated by a combination of "Nitramon" Primer and "Primacord."*

But that isn't all. With "Nitramon" C you can safely install electric lighting, thus making loading easier and faster and, at the same time, helping to reduce accidents.

"Nitramon" C comes in water-tight containers, in a 7 x 24" size convenient for handling and stacking. In addition, it is non-headache-producing.

There is a definite trend toward wider and wider use of "Nitramon" C for coyote tunnel shooting today. It's a favorite with many quarry operators. Why not use it on *your* next blast?

E. I. du Pont de Nemours & Co. (Inc.), Explosives Department, Wilmington, Delaware.

THE MIGHTY SEVENTH WAR LOAN IS ON...BUY BIGGER BONDS

DU PONT NITRAMON REG. U.S. PAT. OFF. PATENTED FEB. 20, 1933 - R. 1,992,217 NET CANS PER 1000# C 7X24

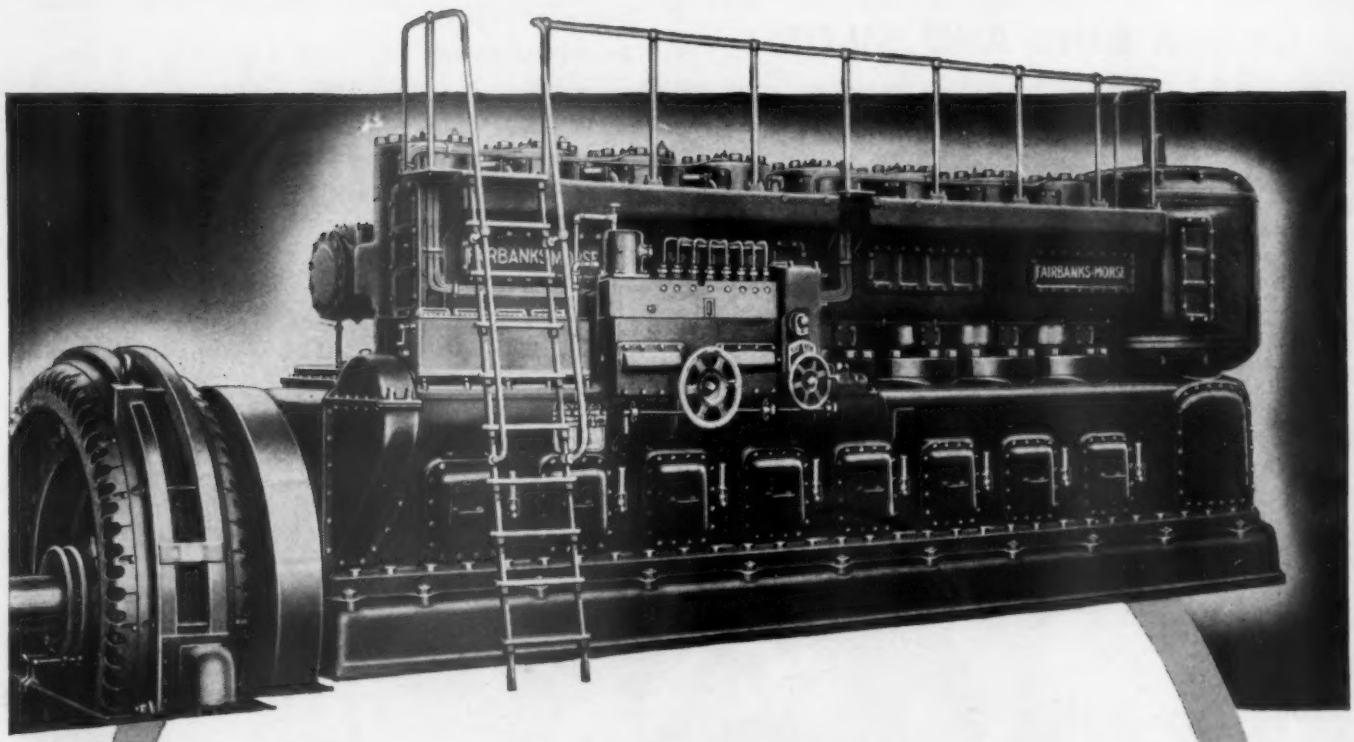
DU PONT REG. U.S. PAT. OFF.

# DU PONT "NITRAMON" C

THE SAFEST BLASTING AGENT

# FAIRBANKS-MORSE

## A name worth remembering




FAIRBANKS-MORSE is the name to think of first when you need Diesel engines. The performance records of more than five million horsepower of these Diesels prove they have the stamina to stand up in sustained, heavy-duty service . . . that they are built for low maintenance cost as well as low fuel cost.

★ ★ ★

The outstanding performance records of Fairbanks-Morse Diesels have been made in every kind of industrial service . . . under every imaginable condition. These great engines have competed against almost every known source of power and come up first.

If you need power, or if you want power that costs less—applied directly or through Diesel-generator sets—ask a Fairbanks-Morse engineer to study your problem.

BUY AND HOLD MORE WAR BONDS

# DIESELS

Diesel Locomotives • Diesel Engines
Pumps • Scales • Generators • Motors
Magnetos • Railroad Motor Cars and
Standpipes • Stokers • Farm Equipment

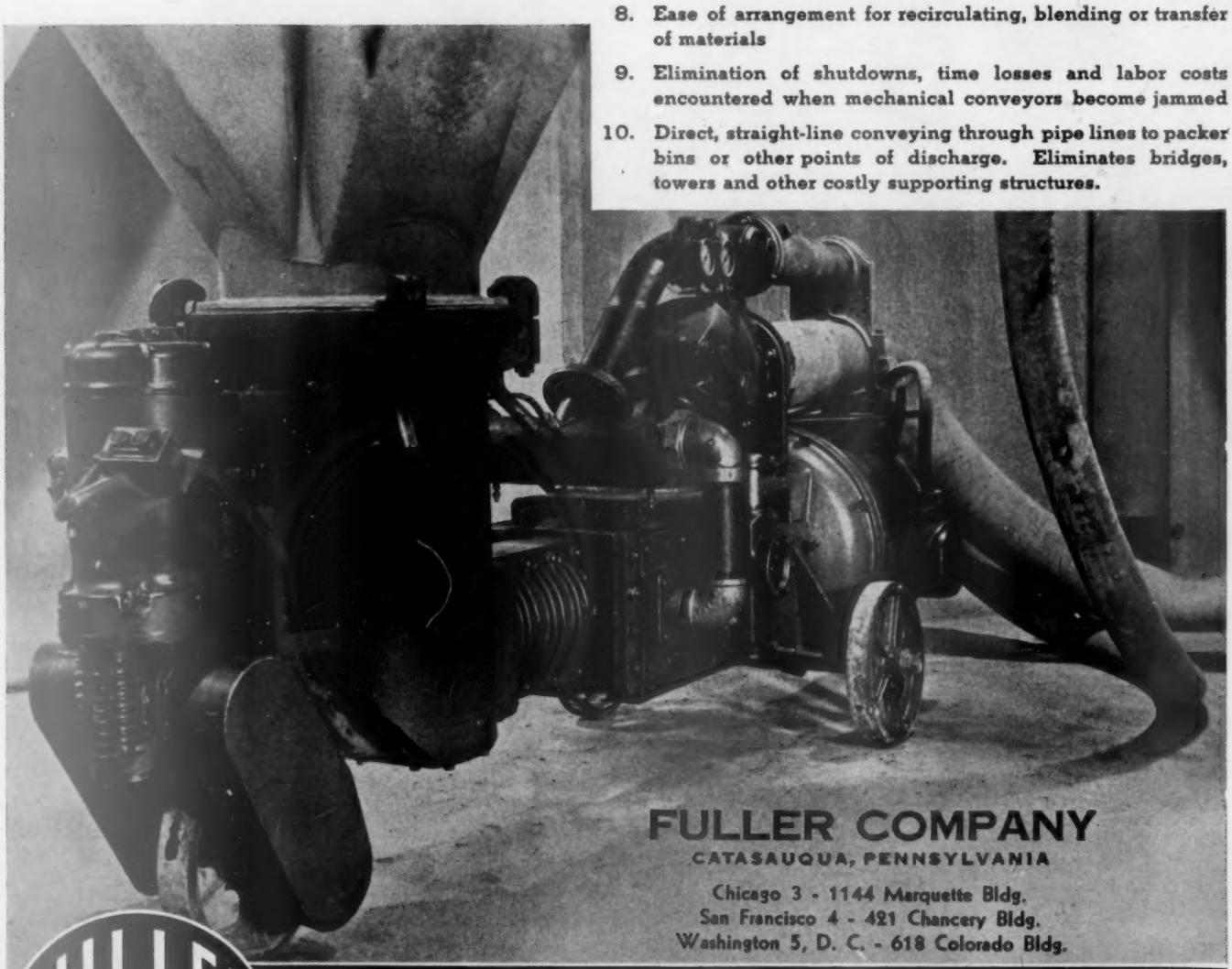
**FAIRBANKS, MORSE & CO., CHICAGO 5, ILLINOIS**

# FULLER-KINYON TRACKLESS PORTABLE PUMP

## REPLACES OBSOLETE MECHANICAL CONVEYORS UNDER BINS AND SILOS

The latest adaptation of the Fuller-Kinyon Pump for conveying from bins and silos, has many advantages over mechanical conveyors, some of which are:

1. Low head room
2. No contamination
3. Dustless operation
4. Low installation cost
5. Low maintenance and operating cost
6. Can be moved under its own power, to any aisle or position, from one point of discharge to another
7. Connections quickly and easily made, without dust or loss of material, to outlet in bin or silo
8. Ease of arrangement for recirculating, blending or transfer of materials
9. Elimination of shutdowns, time losses and labor costs encountered when mechanical conveyors become jammed
10. Direct, straight-line conveying through pipe lines to packer bins or other points of discharge. Eliminates bridges, towers and other costly supporting structures.



**FULLER COMPANY**
CATASAUQUA, PENNSYLVANIA
Chicago 3 - 1144 Marquette Bldg.
San Francisco 4 - 421 Chancery Bldg.
Washington 5, D. C. - 618 Colorado Bldg.

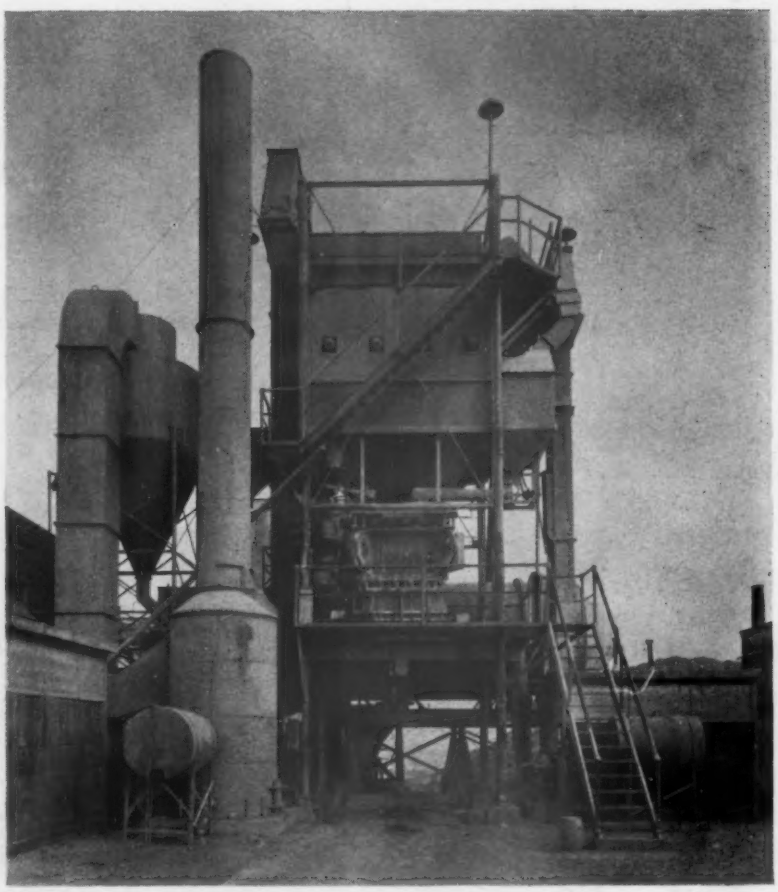
FULLER COMPANY

FULLER-KINYON, FULLER-FLUXO AND THE AIRVEYOR CONVEYING SYSTEMS . . . ROTARY FEEDERS AND DISCHARGE GATES . . . ROTARY AIR COMPRESSORS AND VACUUM PUMPS . . . AIR-QUENCHING INCLINED-GRATE COOLERS . . . DRY PULVERIZED-MATERIAL COOLER . . . AERATION UNITS . . . MATERIAL-LEVEL INDICATORS . . . MOTION SAFETY SWITCH . . . SLURRY VALVES . . . SAMPLERS

P-73

# SIMPLICITY
## ASPHALT PLANTS make Satisfied customers

# Good Performance sells *2nd* Plant



View of SIMPLICITY Asphalt Plant operated by White Consolidated. The 10′ x 20′ dryer is the largest yet built by SIMPLICITY.

The outstanding performance of a SIMPLICITY installation at an Iowa naval air station sold *another* SIMPLICITY asphalt plant to White Consolidated, Chicago.

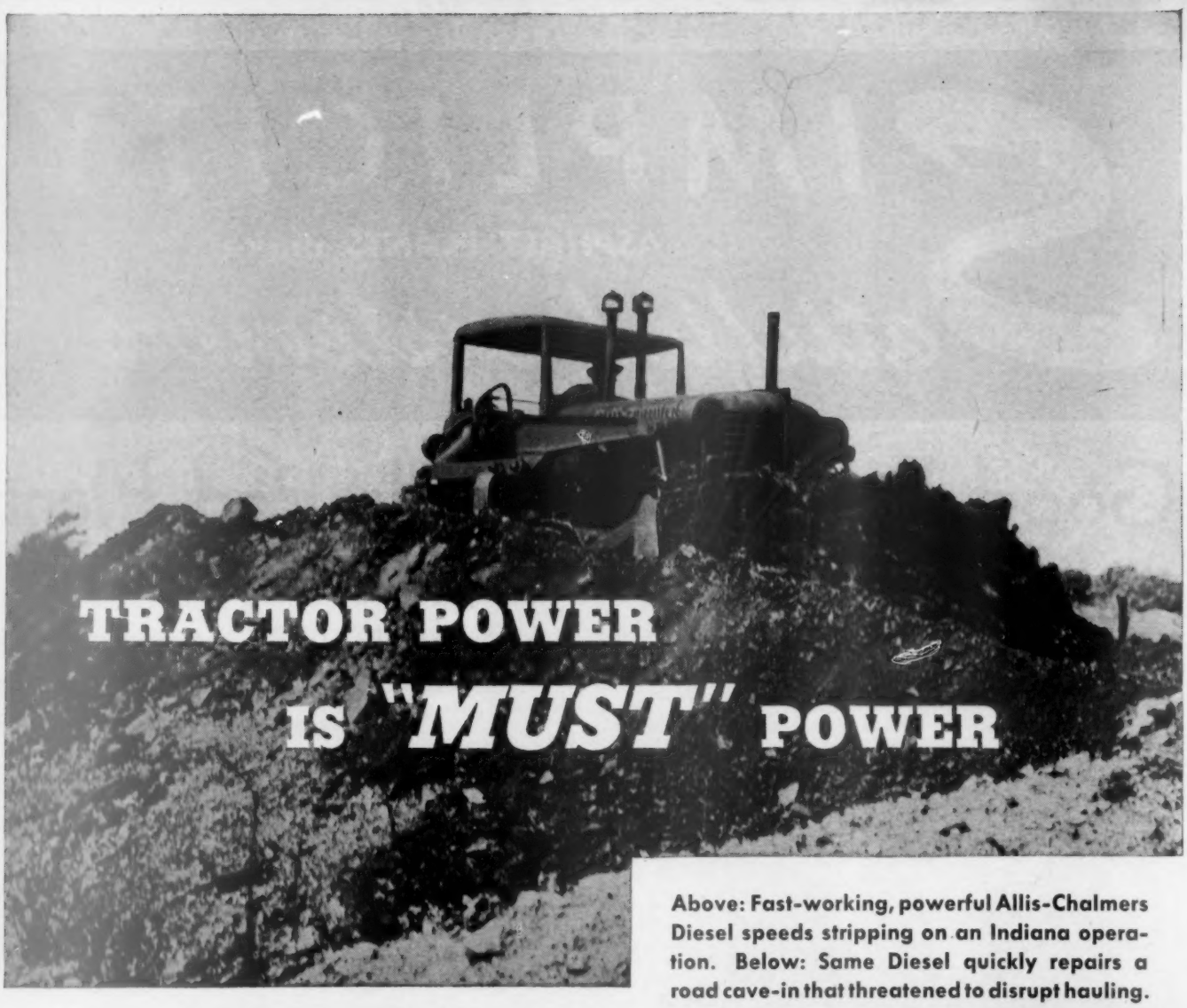
The new SIMPLICITY plant built for this firm incorporates the same features which won this contractor's whole-hearted approval during the course of a grueling mid-winter paving operation for the Navy.

"Efficient engineering design — speedy plant erection — simple and accurate control methods — double-shell dryer" — are advantages cited by informed asphalt producers who "prefer SIMPLICITY every time."

**✓ COMPACT DESIGN**
**✓ FINE WORKMANSHIP**
**✓ LARGE CAPACITY**
**✓ HIGH PORTABILITY**
**✓ LOW OPERATING COST**
**✓ COMPLETE DEPENDABILITY**

*Write for Bulletin*

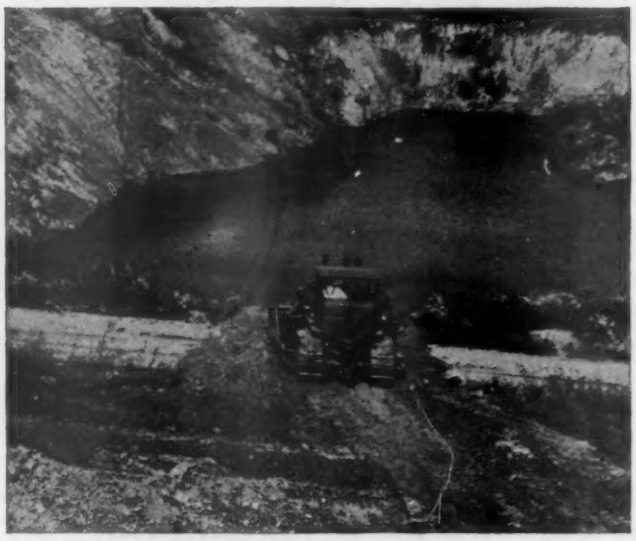
THE SIMPLICITY SYSTEM COMPANY, CHATTANOOGA, TENNESSEE, U. S. A.



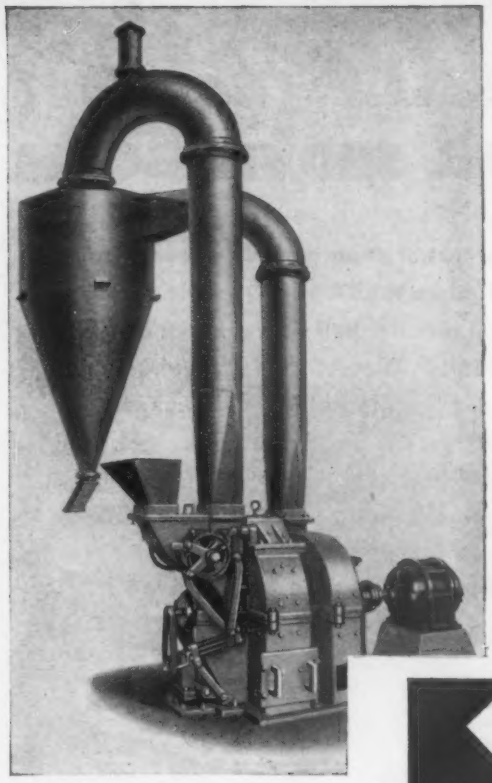

Above: Fast-working, powerful Allis-Chalmers Diesel speeds stripping on an Indiana operation. Below: Same Diesel quickly repairs a road cave-in that threatened to disrupt hauling.

Tractors are "must" equipment for modern operators. Wherever used they increase profits, make quarrying easier, faster. Working with bulldozers, they dig and push material, heave trees, stumps, rocks aside — your cheapest possible handling method. Where earth has to be moved over a distance, they work with scrapers . . . dig and load quickly, travel over roughest going taking steep grades in stride, dump exactly where wanted. Important, too, is the ability of tractors to move and spot heavy machinery.

If you haven't as yet investigated the possibilities of tractor power . . . it will pay you to do so now. Let your Allis-Chalmers dealer prove how it will lower your cost of operation, speed up production and increase your profits.



ALLIS-CHALMERS
TRACTOR DIVISION—MILWAUKEE 1, U. S. A.



Standard Raymond
IMP MILL
with air separation

The ... MILL OF Multitude USES ★

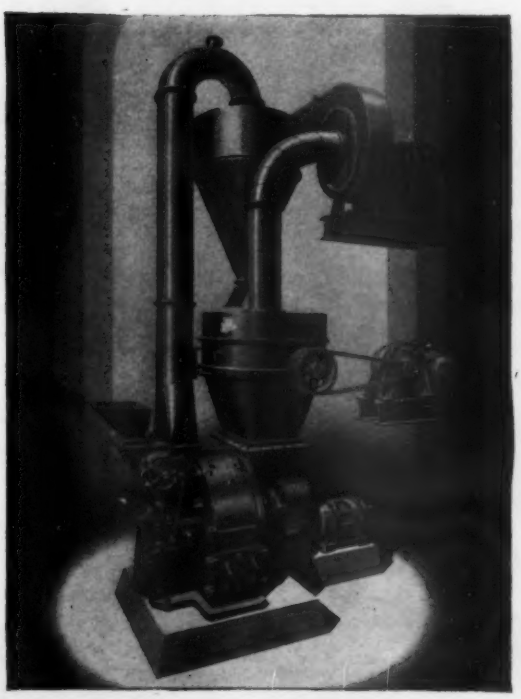
# RAYMOND IMP PULVERIZER

THIS versatile grinding unit is the answer to many different pulverizing and separating problems in the rock products industry.

It may be arranged in various ways:

1. Standard unit with air separation, including piping and cyclone collector, as shown above.
2. In combination with the Mechanical Air Separator for closed circuit grinding operations.
3. Equipped with whizzer type separator to provide wide range fineness control and uniform classification.
4. With flash drying system for calcining operations, drying and grinding moisture laden materials.
5. For direct-firing small kilns and industrial furnaces ... pulverizing coal or pitch.

If your production problem involves: drying, grinding, separating, direct-firing or a combination of these, write for further details of the Raymond IMP MILL.



IMP MILL with whizzer type
air separator

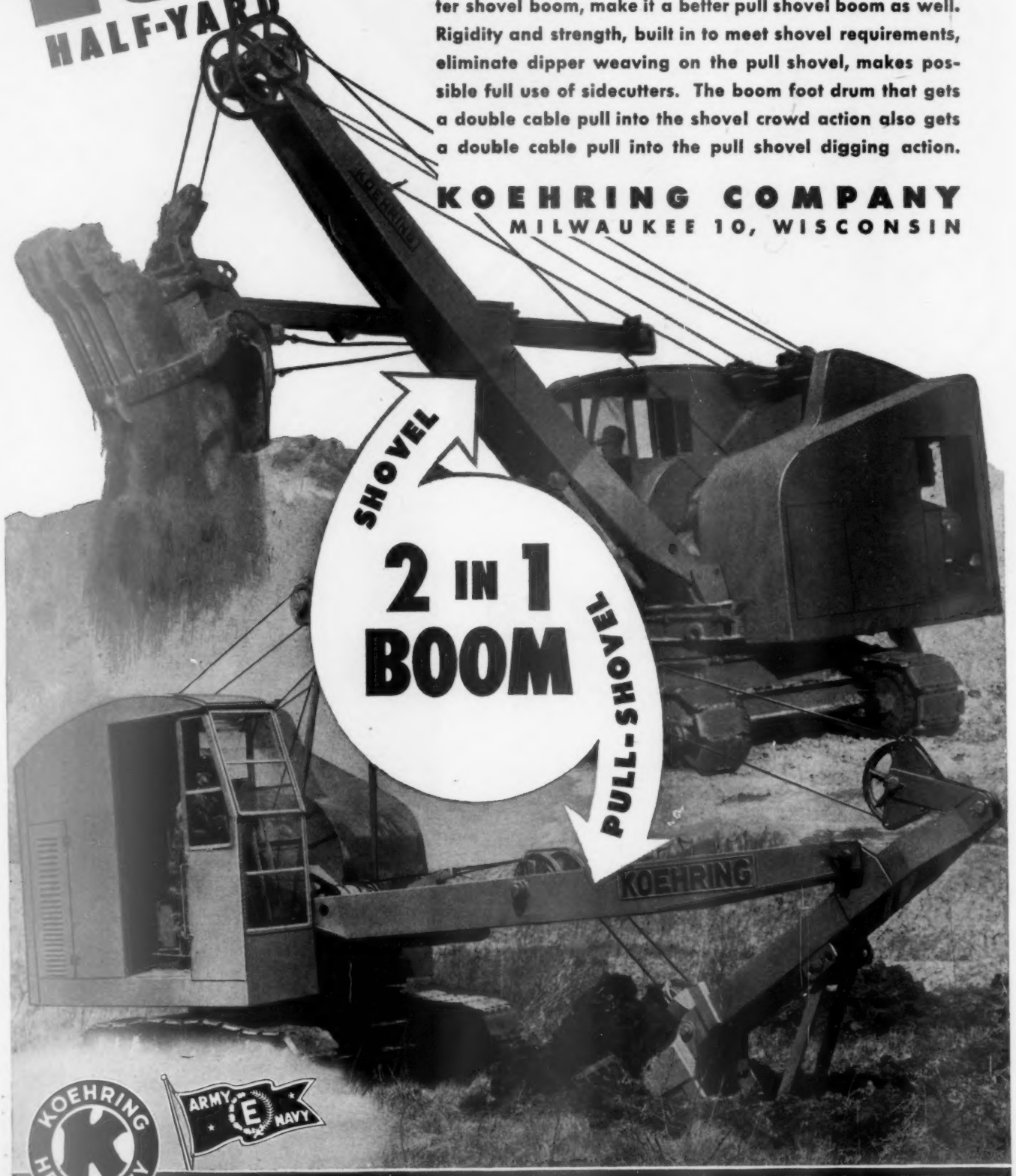
RAYMOND
PULVERIZER DIVISION
COMBUSTION ENGINEERING COMPANY, INC.
Sales Offices in Principal Cities
Canada: Combustion Engineering Corp. Ltd., Montreal
1321 North Branch Street, CHICAGO 22, ILL.

# 205 HALF-YARD

## *Saves* ONE-HALF *the Cost* OF AN EXTRA PULL SHOVEL BOOM

You save one-half the cost of separate pull shovel boom. The same features that make the Two-in-One boom a better shovel boom, make it a better pull shovel boom as well. Rigidity and strength, built in to meet shovel requirements, eliminate dipper weaving on the pull shovel, makes possible full use of sidecutters. The boom foot drum that gets a double cable pull into the shovel crowd action also gets a double cable pull into the pull shovel digging action.

**KOEHRING COMPANY**
MILWAUKEE 10, WISCONSIN




**HEAVY-DUTY CONSTRUCTION EQUIPMENT**

**SHORT-TRAVEL TUBULAR VALVE • WET OR DRY OPERATION • ENCLOSED CUSHIONED RETAINER • SPEED PLUS POWER • 4 WEIGHT CLASSES • SIMPLE CONSTRUCTION • LOW MAINTENANCE • ECONOMICAL OPERATION • AUTOMATIC LUBRICATION • POSITIVE THROTTLE CONTROL • TIMELY BALANCED • STRONG BLOWING POWER • POWERFUL ROTATION**

# "I'm Hitting the Rock for More Holes per Day"

### Operates All Day On Less Air



Thor Short-Travel Tubular Valve

Basic reason for the air economy of Thor Sinker rock drills lies in the patented Thor valve and valve chest design. This enables Thor tools to utilize effectively ALL the air that enters the machine. Spaces between the valve flanges and the valve chest shoulders through which air enters are controlled to a tolerance of .00025 of an inch.

At left above: shoulder measures the exact amount of air needed to drive hammer on the power stroke. At right: measuring precisely the air for return stroke.

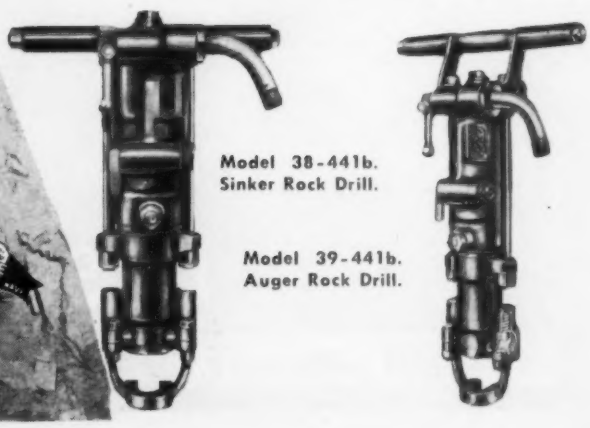
Measured air makes performance smooth and uniform.

Ask the man who runs one, and he will tell you there is something about Thor Sinker Rock Drills that allow long drilling periods without too much wear and tear on the operator. It's the work that gets done, not the operator. A combination of features makes this possible—ample power and speed, smooth control with a four position throttle and accurate balance in the design of the tool.

Thor tools are well made of the finest heat-treated steel and have a world-wide reputation for long dependable service. Besides, both operating cost and maintenance are very low. Standardize on the Thor line and settle sinker problems for years to come. Write for catalog 42A.

**INDEPENDENT PNEUMATIC TOOL CO.**
600 W. Jackson Blvd., Chicago 6, Ill.
New York Los Angeles

*A Complete Thor Line—16 Models in 6 Sizes*



Model 38-441b. Sinker Rock Drill.

Model 39-441b. Auger Rock Drill.

ROTARY KILNS

## ROTARY KILNS

For sintering, nodulizing, calcining, desulphurizing and oxidizing and reducing roasting—also coolers, pre-coolers, preheaters, recuperators—and their accessories.

## GRINDING MILLS

Ballmills, tubemills and multi-compartment mills—wet or dry grinding—open or closed circuit—also air swept for grinding and drying.

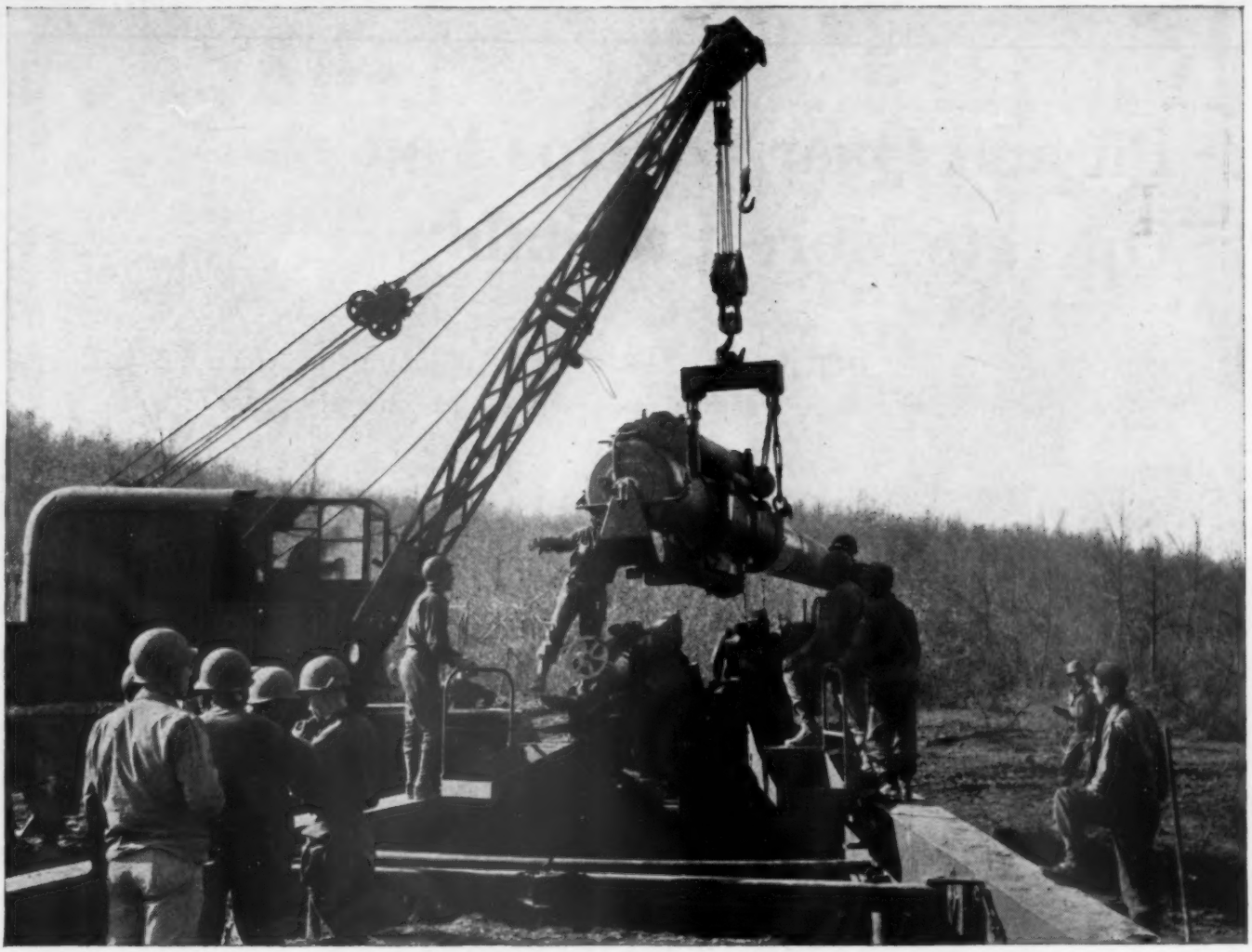
GRINDING MILLS

# F. L. SMIDTH & CO.

11 WEST 42ND ST.

ENGINEERS AND MACHINERY MANUFACTURERS

NEW YORK, N. Y.



# *For Today's BIG PUSH...and Tomorrow's*

# BETHLEHEM PURPLE STRAND

Overseas, big tonnages of Purple Strand rope are helping the Army rain blows against the enemy. That's one of the reasons why you don't see unlimited quantities of this fine wire rope on the home front.

But just for a minute, we'd like you to forget shortages and conjure up some pleasant memories. Memories of jobs like Radio City, Boulder Dam, Golden Gate Bridge, and many, many others. Because, in thinking back, you'll also be peering into the future . . . taking a private peek at things to come.

In the projects of tomorrow, Purple Strand will be doing the same gutty jobs that it has in the past. You'll probably want it on *your* work—for Purple Strand is the toughest, strongest wire rope Bethlehem makes, and that means it's second to none in quality. It's the kind of rope that's built to swing the heaviest girders; built for dippers that juggle the heaviest rocks.

And on those jobs of yours that need a highly flexible line, you're going to want Purple Strand Form-Set (preformed). Every Form-Set line has been preconditioned for easy bending; for applications on small sheaves and drums. You'll like the extra service it gives—the extra life that comes from its high resistance to bending fatigue.

Perhaps we've been telling you a lot of things you already know. If not, better let a Bethlehem man give you the full story.

**When you think WIRE ROPE . . . think BETHLEHEM**

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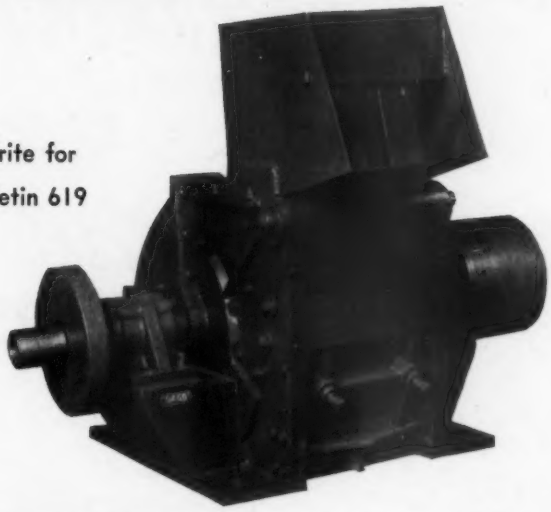

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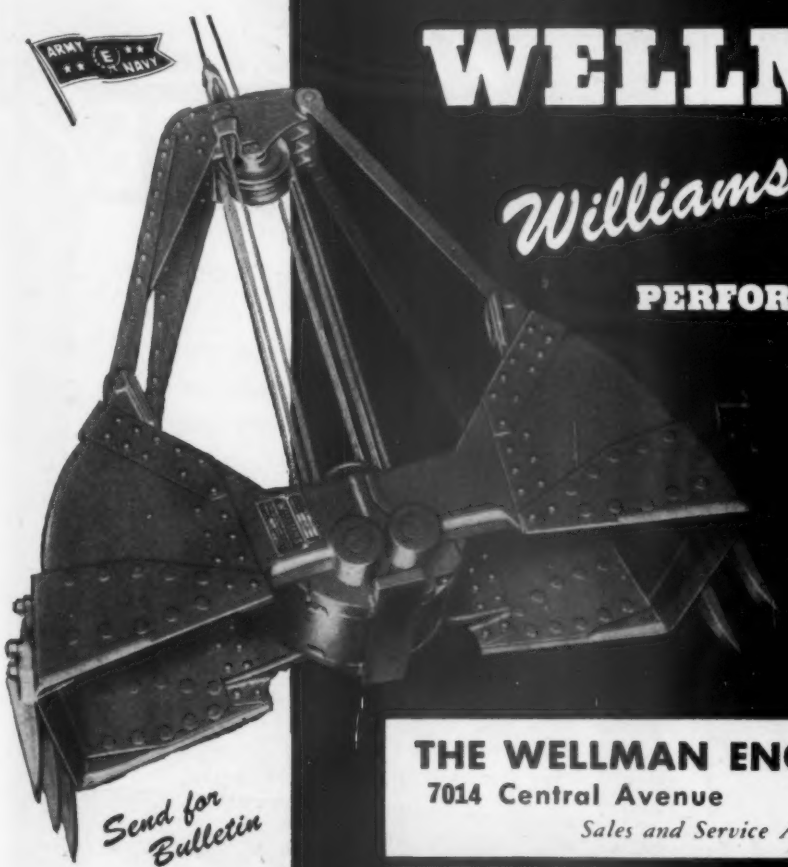


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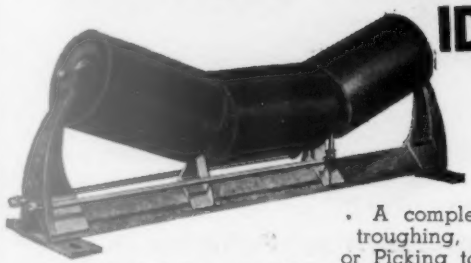

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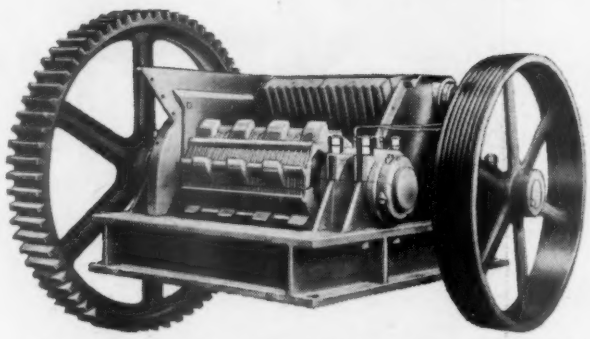

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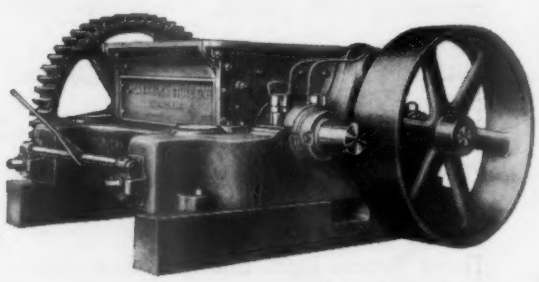

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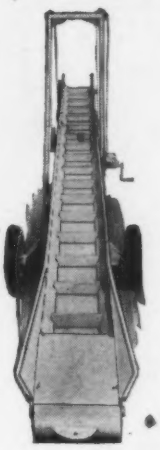

Our Model M Car Unloader requires a pit, and is most suitable when used with slightly elevated track and with medium slope. Will handle large volumes of lime, stoker coal, 4-inch lump coal, corn, etc. **Portable and balanced** for easy handling. Can be equipped with hopper. **Ball and roller bearings throughout.** Heavy, roller **drag chain** — breaking strength 16,000 pounds per strand. Either electric or motor driven.

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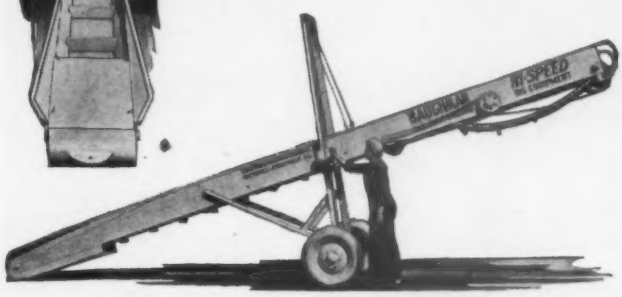


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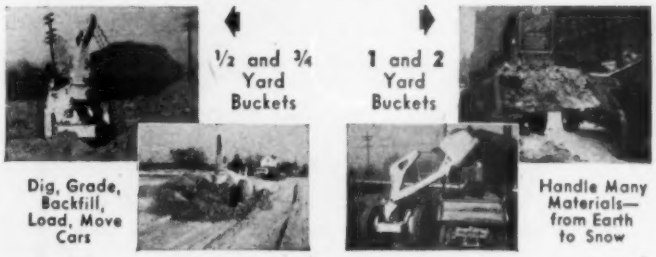


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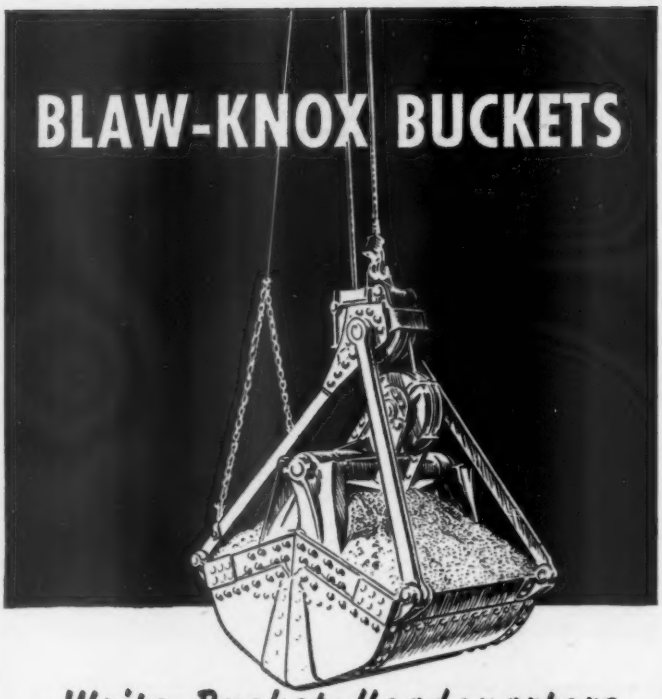

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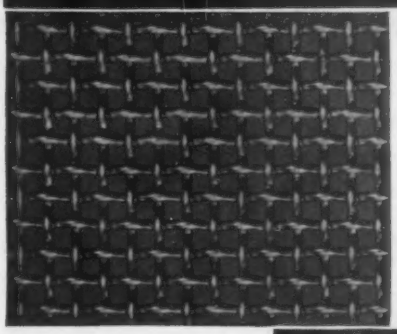

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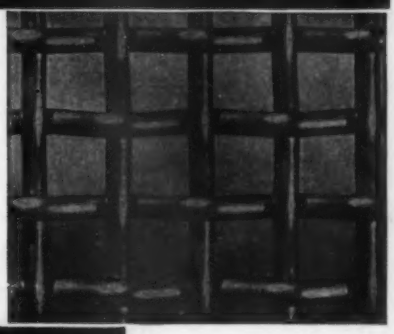

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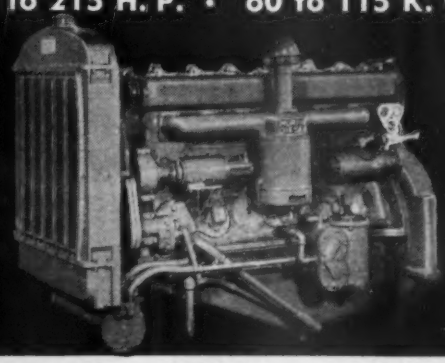

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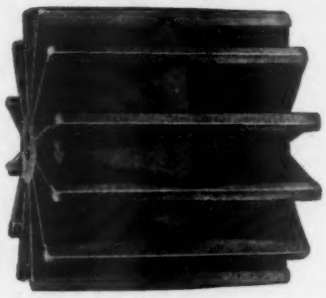

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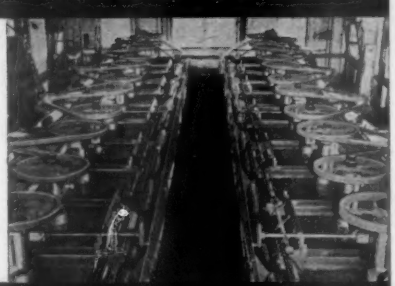

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Bulk Cement Hopper — 400 Bbls. Capacity

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PIT AND QUARRY PUBLICATIONS
538 So. Clark St. Chicago 5, Ill.

## WANTED BY QUARRY

One or One and a Quarter Late Model Gasoline or Diesel Shovel
D4 Cat with or without end loader
Late Model trucks for hauling rock in quarry, with or without Rock Dump Boxes

Write Box 609
PIT AND QUARRY PUBLICATIONS
538 So. Clark St. Chicago 5, Ill.

## POSITION WANTED

Mech. Elec. Engineer, Cement Plant Executive, desires connection with either consulting, sales or operating firm. South or South West location, foreign connection considered. 30 years broad experience in design, construction and operation of cement and crushed stone plants both wet and dry.

Box 619, c/o Pit and Quarry
538 S. Clark Street Chicago 5, Illinois

## WANTED TO BUY

Portable Screening and Crushing Plant.
Sauerman 2 Drum Hoist and Bucket.
Complete with Power Plant.

• •

HERBERTSON SAND & GRAVEL COMPANY
75 Raritan Street Denver 9, Colorado

## WANTED
## CAR PULLER

Capstan type, motor integral, or separate; power 3 ph 60 cy 440 V to pull gross load 355 tons.

Wire or write

**J. L. SHIELY COMPANY**
1101 Snelling Avenue
St. Paul 4, Minnesota

## POSITION WANTED BY CEMENT CHEMIST

Familiar with laboratory practice and plant and quarry operations. Twenty years experience.

Write Box No. 515
Pit and Quarry Publications
538 S. Clark St., Chicago 5, Ill.

## WANTED—CEMENT CHEMIST

Capable of conducting work on cement-asbestos products. Development. Marvelous opportunity for right man. Company is now engaged in essential industry and has unexcelled post war future. Location—Metropolitan New York area. Send complete resume to **Box No. 601, c/o Pit and Quarry, 538 S. Clark Street, Chicago 5, Illinois.**

## WANTED

A used small sand Screen with necessary vibrator. With or without attachments. If attached—current 220 volts, 3 phase, 60 cycle.

• •

Box 617, c/o Pit and Quarry
538 S. Clark St. Chicago 5, Ill.

FOR
**IMMEDIATE DELIVERY**
OF
**RUBBER PRODUCTS**

*Conveyor Belting...Transmission Belting...Elevator Belting...Fire, Water, Air, Steam, Suction or Welding Hose, etc.*

CALL, WIRE or WRITE
**CARLYLE**
THE
RUBBER HEADQUARTERS

**CARLYLE RUBBER PRODUCTS ARE NEW, GUARANTEED & LOW PRICED**

## CONVEYOR BELTING

ABRASIVE RESISTANT COVERS

| Width | Ply | Top-Bottom | Covers | Width | Ply | Top-Bottom | Covers |
|---|---|---|---|---|---|---|---|
| 48" | 8 | 1/8" | 1/16" | 20" | 5 | 1/8" | 1/32" |
| 42" | 5 | 1/8" | 1/16" | 20" | 4 | 1/8" | 1/32" |
| 36" | 6 | 1/8" | 1/16" | 18" | 4 | 1/8" | 1/32" |
| 30" | 6 | 1/8" | 1/16" | 16" | 4 | 1/8" | 1/32" |
| 30" | 5 | 1/8" | 1/16" | 14" | 4 | 1/16" | 1/32" |
| 24" | 5 | 1/8" | 1/32" | 12" | 4 | 1/16" | 1/32" |
| 24" | 4 | 1/8" | 1/32" | | | | |

*Inquire For Prices - Mention Size and Lengths*

## TRANSMISSION BELTING

HEAVY-DUTY FRICTION SURFACE

| Width | Ply | Width | Ply | Width | Ply |
|---|---|---|---|---|---|
| 18" | 6 | 10" | 6 | 6" | 5 |
| 16" | 6 | 10" | 5 | 5" | 5 |
| 14" | 6 | 8" | 6 | 4" | 5 |
| 12" | 6 | 8" | 5 | 4" | 4 |
| 12" | 5 | 6" | 6 | 3" | 4 |

*Inquire For Prices - Mention Size and Lengths*

## ENDLESS "V" BELTS

"A" WIDTH All Sizes | "D" WIDTH All Sizes
"B" WIDTH All Sizes | "E" WIDTH All Sizes
"C" WIDTH All Sizes | Sold in Matched Sets

*Inquire For Prices - Mention Size and Lengths*

PROTECT THAT PLANT
## FIRE HOSE

APPROVED SPECIFICATION HOSE
EACH LENGTH WITH COUPLINGS ATTACHED

| Size | Length | Per Length |
|---|---|---|
| 2½" | 50 feet | $28.00 |
| | 25 " | 16.00 |
| 2" | 50 " | 23.00 |
| | 25 " | 13.00 |
| 1½" | 50 " | 20.00 |
| | 25 " | 11.00 |

Specify Thread On Couplings

SPECIAL OFFER . . . HEAVY DUTY
## RUBBER HOSE

WATER HOSE
Each Length with Couplings Attached

| I.D. Size | Length | Per Length |
|---|---|---|
| ¾" | 25 feet | $4.25 |
| 1" | 50 " | 8.00 |
| | 25 " | 6.25 |
| 1¼" | 50 " | 12.00 |
| | 25 " | 7.50 |
| | 35 " | 10.50 |
| | 40 " | 12.00 |
| 1½" | 50 " | 15.00 |
| | 25 " | 10.00 |
| | 35 " | 14.00 |
| | 50 " | 20.00 |

AIR HOSE

| I.D. Size | Length | Per Length | Couplings |
|---|---|---|---|
| ½" | 25 feet | $5.00 | $1.50 Pair |
| | 50 " | 10.00 | 1.50 " |
| ¾" | 25 " | 6.25 | 2.50 " |
| | 50 " | 12.50 | 2.50 " |
| 1" | 25 " | 10.00 | 3.50 " |
| | 50 " | 20.00 | 3.50 " |

LARGER SIZES ALSO AVAILABLE
*All Prices—Net—F.O.B. New York*

## CARLYLE RUBBER CO., INC.
62-66 PARK PLACE NEW YORK, N. Y.



**SHOVELS—CRANES**
Bucyrus-Erie 37B shovel. Gas.
Bucyrus-Erie 20B Electric Shovel 1 yd.
Marion 37 Electric shovel 1¾ yd.
**Marion 371, 1¾ yd. Shovel, Crane, Dragline**
Marion elec. shovel, 1¼ yds.
Lorain 75B shovel and crane, 1½ yds.
Bucyrus-Erie 42B Steam shovel-crane
P & H 650 shovel-crane
Browning 10 ton Truck Crane
**P & H 208A, 8 ton Truck Crane**
**Byers Bearcat ⅛ revolving Crane, 5 tons cap.**

**SPECIALS!!**
**Allis-Chalmers cent. pump, electric, 3500 GPM, 50'**
2 tons Drill Steel 1¼", shanked and bittered
**Worthington 8" cent. bronze impeller, elec. Pump**
**Rotary Screen 4'x18' with Bucket Elevator 40'**
200-ton 2-compartment Steel Rock Bin

**BUCKETS—STONE SKIPS**
**⅞ yd. Blaw-Knox Clamshell, digging**
**⅞ yd. Hayward Clamshell, digging**
**Hayward ¾ yd. Standard Orange Peel**
**⅝ yd. Williams Clamshell, digging**
**¾ yd. Haiss Clamshell, digging**
**½ yard Haiss Clamshell, rehandling**
**¾ yard Haiss Clamshell, rehandling**
**Erie ¾ yd. Clamshell, rehandling**
**20—2½ to 3 yd. Battleship type Steel Stone Skips**

**TRACTORS—BULLDOZERS**
Int. TD18 tractor with bulldozer, rebuilt
Int. TD40 tractor with bulldozer, rebuilt
Allis-Chalmers Model WS tractor with 8 yd. hydraulic scraper
Allis-Chalmers Model L with bulldozer

**CRUSHERS—CRUSHER PLANTS**
Roll Crushers, 54 by 20; 20 by 40; 30 by 24; 16 by 24; 16 by 42.
Sturtevant No. 2 Ring Roll Mill.
Gyratory Crushers: K.V.S. 30, 49; Traylor 8", 10", 12", 14", McCully 13", 8", 6".
Jaw: 10x22, 10x24, 10x30, 11x18, 11x21, 12x22, 12x24, 14x24, 14x25, 15x32, 16x32, 16x36

**LOCOMOTIVES—CARS**
American 60 ton, steam, std. ga.
American 45 ton, Saddle Tank
Vulcan 25 ton side saddle tank, steam, std. gauge
Plymouth 30 ton standard gauge Saddle Tank
Vulcan 30 ton Steam, Saddle Tank
Porter 12 ton, Steam Saddle Tank, 36" gauge
Baldwin Westinghouse 8 ton, 36" ga. Battery
Vulcan 6 ton, 36" gauge, gas
3—Western Steel 20 yard Air Dump Cars
3—30 ton Standard Gauge Flat Cars, rebuilt

**CONCRETE PLANT & EQUIPMENT**
2—Ransome 2SS Mixers on skids, left and right hand
Koehring 34E Dual Drum Power
Fuller Kinyon Bulk cement unloader
Pauers—27E—2 Koehring, 1 Multi-Foote 1 Rex
Rex Pumpcrete Models 160, 180, 190 and 200

**RICHARD P. WALSH COMPANY**
30 Church St. New York, N. Y.



## EQUIPMENT FOR SALE

1—8 ton VULCAN Standard gauge gasoline locomotive.
1—4½ ton Plymouth 24" gauge gasoline locomotive. Model FL.
1—56 ton BALDWIN 0-6-0 steam switching type locomotive, cylinder 19" x 24".
1—Lot Westinghouse 9½" locomotive air pumps, rebuilt.
1—INDUSTRIAL WORKS 17 ton steam locomotive crane, 8 wheels, 52' boom. N. B. boiler.
4—50 ton capacity FLAT CARS, std. gauge. 40' long, steel underframes.
20—Small 30" gauge 4 wheeled platform cars, Timken bearings: Bed 5' x 8'.
1—WILLIAMS ½ yard "Favorite" type clam shell bucket.
1—P. & H. model 700-B crawler type gasoline dragline, 60' boom & fairleads.

Send us your inquiries for rebuilt equipment.

**Southern Iron & Equipment Co.**
Plant & General Offices.
P. O. Box 2029, Atlanta 2, Ga.



# Realize Large Tax Benefits

LONG ESTABLISHED, REPUTABLE CONCERN WITH SUBSTANTIAL CAPITAL

**WILL BUY FOR CASH**

Assets, Capital Stock, Family Holdings of

**INDUSTRIAL PLANTS, MFG. DIVISIONS, UNITS**

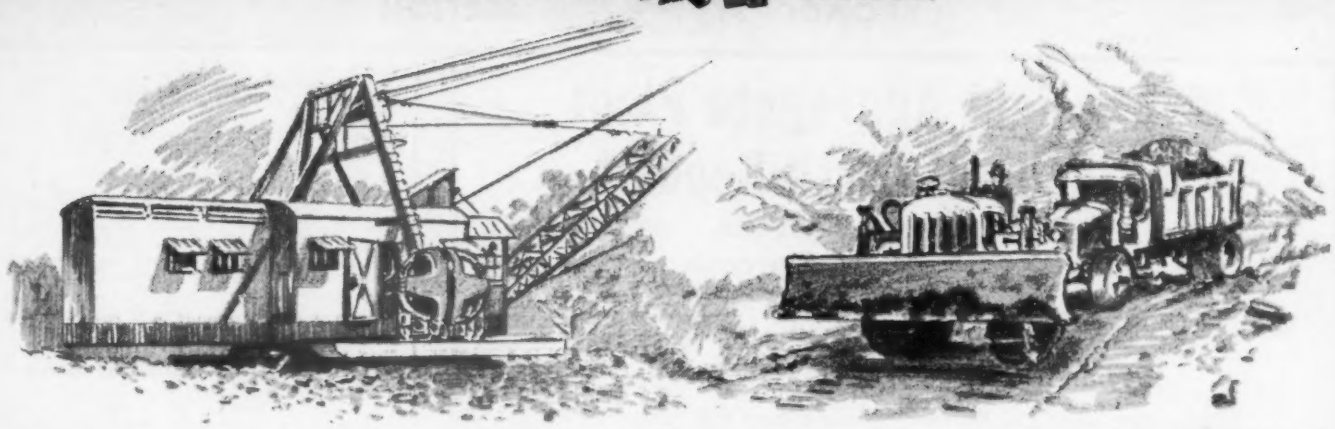
We are Principals, and act only in strictest confidence, retaining personnel wherever possible, Address

BOX 1200—1474 BROADWAY, N. Y. C.



100 TONS — NEW
# SURPLUS STEEL
¼ in., ½ in., and ¾ in.
ARMOR PLATES

**E. Cohn & Sons**
CEDAR RAPIDS, IOWA



# *Move the Aggregates—NOW!*

**Move the aggregates into trucks or cars—get them rolling out of the Pit or Quarry.**

**Don't let lack of equipment cramp your production. Look over the partial lists of ECONOMY COMPANY shown below—then Wire or Phone us what you need. We'll arrange inspection for you and get the machines on your job — FAST. And we can promise you some ECONOMICAL Buys.**

### SHOVELS and DRAGLINES

1—1939 ⅝ yd. Link-Belt Speeder shovel and crane-dragline
1—⅝ yd. Byers Model 40 shovel
1—⅝ yd. Bay City "Pump" ¾ swing shovel
1—⅝ yd. Byers Bearcat shovel
1—1940 Bay City 20 shovel and backhoe combination
1—Universal ¾ swing, ¾ yd. shovel
1—Fundum ¾ swing, ⅝ yd. shovel
1—very late Model B full revolving Hanson shovel
1—⅛ yd. Insley shovel and backhoe combination
2—¾ yd. Universal shovels
1—⅝ yd. Wilford Shovel and Crane
1—¼ yd. Bucyrus-Erie 10/20 crane
1—⅝ yd. Byers shovel
1—⅝ yd. Byers shovel
1—⅛ yd. Byers backhoe-crane and dragline combination
1—⅝ yd. Byers Bearcat half swing
1—½ yd. General crane
2—½ yd. Byers Bearcats
1—⅝ yd. General diesel shovel and dragline
1—¼ yd. General shovel-crane combination
1—½ yd. Hanson shovel
1—⅝ yd. Insley Model B shovel
1—½ yd. Insley half swing crane
1—Model K-12 Insley shovel, crane-backhoe and two buckets
1—½ yd. Insley Model B full swing shovel and backhoe combination
1—½ yd. Buckeye crane
1—⅝ yd. Buckeye crane
1—⅝ yd. Meade & Morrison shovel and backhoe combination
1—½ yd. Northwest Model 2 shovel
1—½ yd. Orton Crane
1—⅝ yd. P&H Model 300A shovel-dragline combination
1—½ yd. Unit shovel
1—¾ yd. Link-Belt Speeder Model B5 shovel-dragline-backhoe
1—¾ yd. Link-Belt Speeder Model B5 shovel-dragline
1—¾ yd. Bucyrus-Erie 20B dragline with Atlas Diesel Engine
1—¾ yd. Bucyrus-Erie 20B gas shovel
1—¾ yd. Bucyrus-Erie 1030 crane-dragline
1—¾ yd. General diesel backhoe-crane
1—¾ 1940 General Shovel and Backhoe combination
1—Keystone Excavator Model 4-26
1—¾ yd. Koehring Model 301 shovel and crane combination
1—¾ yd. Koehring 301 shovel-dragline
1—¾ yd. Lorain shovel-dragline
1—¾ yd. Link-Belt dragline
1—¾ yd. Lorain Model 45 crane
1—¾ yd. Thew Lorain shovel
1—¾ yd. Marion Model 7 dragline
1—¾ yd. Northwest Model 102
2—¾ yd. Northwest Model 3 shovel
1—¾ yd. Osgood shovel
2—¾ yd. P&H Model 204 crane
1—¾ yd. P&H Model 400 crane
1—¾ yd. P&H Model 400 shovel-dragine combination
1—1 yd. Austin Shovel and crane-dragline combination
1—Byers Model 29 crane
1—1 yd. Link-Belt Model K dragline
1—1 yd. Lorain Model 55 dragline and crane combination
1—1 yd. Lorain Model 55 shovel
1—1 yd. Lorain 60A shovel
1—1 yd. Marion Model 440 shovel—brand new Cummins diesel engine
1—1 yd. Northwest Model 4 dragline
1—1 yd. Lorain 60A crane and shovel
1—1 yd. Model 104 Northwest crane-dragline combination
2—1 yd. Northwest Model 105 shovel-dragline combinations
1—1 yd. Osgood shovel-backhoe combination
1—P&H 400 dragline 1 yd.
1—P&H 600D shovel 1 yd.
1—P&H 600 shovel 1 yd.
1—1 yd. 600 P&H crane
1—1½ yd. 1940 Browning diesel shovel-dragline
1—1½ yd. late model Koehring 601 dragline
1—1½ yd. Bucyrus-Erie 37B shovel
1—1½ yd. Lima shovel
1—1½ yd. Link-Belt Dragline
2—1½ yd. Northwest Model 6 shovel-draglines
1—1½ yd. Northwest Model 6 dragline
1—1½ yd. Specially constructed Northwest 104 with long swamp cats
1—1¾ yd. P&H Model 700B dragline
1—1¾ yd. Model 701 P&H dragline diesel powered
1—1¾ yd. P&H Model 650 Crane and dragline combination
1—1¾ yd. Bucyrus-Erie 43B gas shovel
1—1¾ yd. rebuilt Marion Model 371 shovel-dragline
1—2 yd. diesel Koehring Shovel-dragline Model 801
1—2 yd. Northwest Model 8 dragline
1—2 yd. Page dragline—Walker type
1—2 yd. Bucyrus-Erie High-Lift electric shovel Model 50B
1—1¾ yd. Marion 37 electric dragline
1—2½ yd. Bucyrus-Monighan Walker Dragline
1—2½ yd. diesel Bucyrus-Erie shovel and dragline combination
2—2 yd. Bucyrus-Erie Model 50B crane-dragline combination diesel
2—3 yd. Marion Model 125 electric shovels
1—3 yd. Electric Monighan Dragline Model 3T
1—3 yd. Marion 40A dragline
2—3 yd. Monighan diesel dragline
1—4½ and 5 yd. Bucyrus-Erie 120B electric shovel-dragline combination
1—4 yd. Model 125 Marion electric shovel
1—5¼ yd. Bucyrus-Erie Model 4W Monighan dragline
1—6-7½ yd. Marion Model 72 dragline
1—15 yd. electric tower machine

### STEAM SHOVELS—DRAGLINES

1—6 to 8 yd. Bucyrus-Erie Model 225B—80' boom—54' dipper stick
1—5 yd. Marion shovel Model 92
1—4½ yd. Bucyrus-Erie dragline Class 24
1—4 yd. Bucyrus-Erie 175B steam shovel
1—3½ yd. Marion steam shovel, 65' boom and 40' dipper stick Model 250
1—3½ yd. Bucyrus-Erie 175B shovel, 75' shovel boom and 36' dipper stick
1—3 yd. Bucyrus-Erie 80B steam shovel—highlift type
1—2½ Osgood steam shovel Model 73
1—Monighan 2 yd. steam dragline with 65' dragline boom and 2 yd. Page dragline bucket
2—2 yd. Bucyrus-Erie 50B steam shovels—30' shovel boom—26' dipper stick
1—Bucyrus-Erie 50B—2 yd. dragline with 60' boom and 2 yd. dragline bucket

### DUMP TRUCKS

Mostly late Models. If interested write, telephone or wire for complete information.

1—21 yd. Diesel Supercharged Euclid Bottom Dump truck
3—18 yd. Diesel Supercharged Euclid Bottom Dump trucks
3—20 yd. 6-wheel Maxi Model 140 2-way side dump trucks
3—15 ton Model 1 ZWCL Euclid gas bottom dump truck tractors
3—14 yd. Oshkosh Earthmover dump trucks
6—12-15 yd. Federal Tractors and Semi-Trailers
1—12 yd. 1934 A. C. Mac Dump Truck
6—12 yd. 6-wheel Titan Dump Trucks
4—12 yd. Model FDT Euclid Bottom Dump Trucks—Cummins diesel engines
4—12 yd. Model 12ZWCL Euclid Bottom Dump Trucks
5—12 yd. Model 12ZWCL Euclid Dump Trucks
6—Sterling Rear End 11 yd. Dump Trucks Model HC8210H
1—11 yd. 1939 Sterling diesel dump truck
4—8-12 yd. Euclid Bottom Dump trucks Model FZWCL
1—10 ton AC Mack 1931 model dump truck
4—16 ton 6-wheel Nelson LeMoon Trucks
5—9 yd. Euclid Trac-Trucks with GM diesel motors Model 12
18—Heavy duty International Dump and Supply Trucks
3—8-10 yd. Athey Three-Way Dump Caterpillar Wagons Model AT
1—8 yd. Sterling Model DC 26-1931 with Heil hoist
1—6 yd. End Dump Car
3—6 yd. 1933 International A6 dump truck with sideboards
50—6-8 yd. new Ford Dump Trucks—tandem drive Model DF29E
3—1940—6 yd. Autocar Dumpers with Heil Hoist
1—5 ton AK Mack Dump Truck
1—8 ton AC Mack Dump Truck
6—6-10 yd. Heil Body—heavy duty 1937 Mack Special rock type body
1—5 yd. 1932 A6 International Dump Truck with sideboards
1—1935 Studebaker Dump truck 5 yds.
4—5 yd. HD140 Sterling Dump Trucks
6—4½ yd. 400AC 1939 GMC dump and cab trucks
2—1941 White 4 yd. trucks
1—AC 4 ton Mack dump truck
4—1941 Chevrolet Thornton 4 yd. drive trucks and Gallon hoists
1—8½ ton Mack Truck in good operating condition
1—3 ton International 1940 model dump truck
1—1940 Ford Truck 10 yd. tailgate, 8 yd. sides
1—3 ton Mack dump truck
2—1942 International 3 yd. rear dump trucks
6—2½ yd.—2 GMC and 4 1940 Ford Dump Trucks
1—2 ton White Dump Truck with convertible body
1—2 ton Brockway dump truck
1—2 yd. Autocar chassis complete Model 488H Dempster-Dumpster unit with five 2 yd. buckets
1—2 yd. Diamond T chassis complete with Model 399H Dempster-Dumpster unit with five 2 yd. btickets
5—2 yd. Studebaker chassis complete with Model 454H Dempster-Dumpster unit with five 2 yd. buckets
6—2 yd. Ford Dump Trucks
2—Chevrolet Platform Stake Dump trucks
3—1½ ton International Dump Trucks
1—1½ ton Reo Dump Truck
12—1½ ton 1941 Chevrolet Dump Trucks with 3 yd. dump bodies
11—1½ ton Ford Dump Trucks
8—Ford dump trucks
2—GMC dump trucks
6—Chevrolet dump trucks

In addition to the above we can offer you steam shovels and steam draglines ranging in size from ¾ yd. upwards.

SHOVELS
TRUCK CRANES
TRACTORS
DUMP TRUCKS
BUCKETS
OVERHEAD CRANES
LOCOMOTIVE CRANES
MIXERS
TRAILERS
CRANE ATTACHMENTS
GRADERS
BULLDOZERS

Complete listing on each of these items will be forwarded promptly upon request.

# ECONOMY COMPANY, INC.

**49 Vanderbilt Ave., N. Y. C.** **Tels. MUrray Hill 4-2294-8292-2295-2296**

# Lightweight Aggregate Plant and Fullers' Earth Deposit

## at Ellenton, Florida
## 40 Miles from Tampa

**Government-owned; to be Sold by Reconstruction Finance Corporation (A Disposal Agency Designated by Surplus Property Board)**

This plant includes the machinery, equipment, railroad facilities, and utilities used to produce lightweight aggregate for concrete.

Comprises 22 structures—buildings, sheds, oil tanks, bins—of varied construction (steel, wood, brick and concrete). Repairs are required. Served by spur line (with sidings) of the Tampa Southern (A. C. L. System) R. R. Frontage of approximately 3900 ft. on the Manatee River (about 6 ft. channel on southerly edge of tract—dredging necessary) with riparian rights; and approximately 5900 ft. on U. S. Highway 41. Inspection by appointment.

•

With the exception of about three acres covered by the plant and roadways, the entire tract of 333 acres contains approximately 300,000 cubic yards of Fullers' earth.

**For complete information get in touch with**

## RECONSTRUCTION FINANCE CORPORATION

*Industrial Facilities Section* ] OR [ *Western Union Building*
*Washington 25, D. C.* ] OR [ *Jacksonville 2, Fla.*

BUY WAR BONDS

22

### FOR SALE

24 x 50" Champion Jaw Crusher Rebuilt.
24 x 36" Farrell Jaw Crusher, rebuilt.
14 x 36" Cedar Rapids Jaw Crusher.
Allis Chalmers, Gates No. 6 Superior McCully Gyratory Crusher fine Reduction.
Traylor 36" Type TZ Gyratory Crusher.
Austin No. 107 Gyratory Crusher.
McLanahan 18 x 24" Single Roll Crusher.
McLanahan 21 x 42" Single Roll Crusher.
Williams "Comet" 4 roller Mill, complete.
Hardinge 4' x 8' Pebble Mill with Pebbles.
Symons Cone Crushers 2', 3' and 4'.
Two Bucyrus Erie Diesel Cat Cranes.
Insley ½ yard, ¾ swing Gas Crawler Shovel.
P&H No. 206 Gas Crawler Shovel.
Sauerman ¾ yard Drag Scraper Outfit.
127 Lakewood 2 yd. 36" ga. V shape Dump Cars.
Chain & Bucket Elevator, 14x7x7¼" buckets.
Belt & Bucket Elevator, 14x7x7¼" buckets.
Venn Severin 125 HP Diesel Engine, Rebuilt.
Busch-Sulzer 165 HP, 2300 Volt Gen. Set.
McIntosh & Seymour 300 HP, 2300 Volt Gen. Set.
Barber Greene & Nelson Bucket Loaders
22½ ton Ohio Std. Ga. Electric Loco. Crane.
Natural Gas & Steam Engines, Compressors, etc.
Boyd "Special" 6 Mold Dry Press with mixer or feeder.

**MID-CONTINENT EQUIPMENT CO.**
**710 Eastgate Pa. 2290 St. Louis 5, Mo.**

Modern Equipment for Contractors, Quarries, Sand and Gravel Plants, Mines. Complete plants purchased.

• •

**A. J. O'NEILL**
**Landsdowne Theatre Building**
**LANDSDOWNE, PA.**
**Phila. Phone: Madison 8300**

### LOCOMOTIVES

3—36 Ton Heisler, Standard Gauge, Geared Type, Steam, Class 36-8-33. Good Operating Condition. No Reasonable Offer Rejected.

1—50 Ton Heisler, Standard Gauge, Geared Type, Steam, Class 50-8-36. Good Operating Condition. Priced Very Reasonable.

**The Bessemer Limestone and Cement Co.**
**1100 City Bank Building**
**Youngstown 3, Ohio**

1—Cat. "30" Tractor equipped with LaPlant Choate Angledozers
1—Huber 10-Ton 3-Wheel Roller Serial No. 8240
1—Jaeger 10-S Concrete End Discharge Mixer with Batchmeter, Water Tank on 2-pneumatic tires
1—Jaeger 7-S Concrete End Discharge Mixer with Batchmeter and Water Tank on 2-pneumatic tires
1—18 x 36 Farrel Bacon Jaw Crusher
1—Iowa KD 9 x 16 Self Propelled Portable Crusher on 4-pneumatic tires. Powered by International Model 20 Tractor.
2—Dempster Dumptors 1½ yard complete ready for mounting on trucks.

**THE LORENZ EQUIPMENT CO.**
**547 West Rich Street COLUMBUS 8, OHIO**

### WANTED TO BUY

1 to 4 Bins

Cone bottom and cone top bin, 25 ft. dia. approx. 30 ft. high on the straight. The bottom cone should be ⅜" material, the shell $\frac{5}{16}$" material and the top cone ¼" material.

Notify:

**THE J. E. BAKER COMPANY**
**114 No. George St. York, Pa.**

## DIESELS

### BUCKEYES

**3—262 H.P. "E" 175 K.W.**
**1—240 H.P. "P" 150 K.W.**
**1—190 H.P. "70" 120 K.W.**
**3—150 H.P. "E" 125 K.W.**

**ROBERT SCHOONMAKER**
**Port Washington, Long Island, N.Y.**
**Phone Roslyn 1220**

### GOOD USED EQUIPMENT

Fairbanks-Morse 150 ton R R Track Scale
9' Clearfield Foundry Wet Pan
86" Sturtevant Exhaust Fan
National—10 ton single drum Winch, arr. for Direct Motor Drive
200 HP Westinghouse Slip Ring Motor with starter —3/60/440—1160 RPM's
60 HP Westinghouse Type SK 230 volt DC 680 RPM Motor
25 HP General Electric Induction Motor, 3/60/440—1160 RPM's, with starter.

• • •

**IRA C. JORDAN**
**2508 EAST BELLEVIEW PLACE**
**MILWAUKEE, WISCONSIN**

**FOR SALE**

Power Unit 66 HP International U21, Rebuilt.
Vibrating Screen, Bonded, 3 Deck, 3x6 ft.
Roll Crusher, New Holland 16 in.

**J. H. DONAHEY**
**Hocking Valley Sand & Gravel Co.**
**R. D. 3—Nelsonville, Ohio**

### WANTED TO BUY

3—Two C.Y. Rex or Smith high discharge truck mixers
1—40 C.Y. batcher bin with scales
State price and guaranteed condition.

**BRYAN SAND & GRAVEL CO.**
**Rogers, Texas**

315 cu. ft. LeRoi Portable two-stage Compressor, on four steel wheels. A 1. $1850.00
210 cu. ft. Sullivan Portable two-stage Compressor, on four steel wheels. A 1. $1200.00
Ingersoll-Rand reconditioned Wagon Drill, late model D-2 X-71, pneumatic hoist, 10 ft. changes. $750.00
Late model CH-200 Brooks Load Lugger with 2 yd. buckets. $600.00
General-Osgood ¾ yd. dragline,—crane, 35 ft. boom. $3750.00
Byers late model 262, shovel, ⅝ cu. yd. $4500.00
Byers ⅛ swing, ½ cu. yd. shovel. $1650.00
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1—Acme jaw crusher, Ser. No. 1686, size 9x16".
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1—United Iron Works, "Blake-type" jaw crusher, size 9½x24".
1—No. 9 New Holland jaw crusher, size 6x9".
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1—5x4" Dayton-Dowd pump, No. 4713, power 10 H.P. AC motor. Capacity 500 GPM @ 40' head.
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Large stock of small motors in stock.

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| 350 | G. E. | MT | 2300 | 300 |
| 300 | G. E. | IM | 2300 | 514 |
| 300 | G. E. | IM | 440 | 293 |
| 200 | Howell | rlr. b. | 440 | 600 |
| 150 | Wtg. | CW | 2200 | 600 |
| 100 | Westg. | vert. | 2200 | 1160 |
| 100 | G. E. | IM | 2200 | 1800 |
| 100 | Westg. | HF | 440 | 230 |
| 75 | Northw. | HW | 220 | 1740 |
| 50 | G. E. | MT | 2200 | 1200 |
| 50 | G. E. | MT | 220 | 900 |
| 50 | Westg. | . HF | 440 | 860 |
| 50 | Al. Ch. | ARY | 220 | 690 |
| 50 | G. E. | MT | 2200 | 600 |
| 40 | Wagner | TBR | 440 | 1725 |
| 40 | Al. Ch. | ARY | 220 | 1160 |
| 35 | F. Morse | vert. | 220 | 1800 |
| 30 | G. E. | MT | 440 | 1150 |
| 30 | Wagner | BR | 440 | 850 |
| 25 | G. E. | IM | 440 | 1740 |
| 25 | Century | SR | 416 | 1170 |
| 25 | G. E. | MT | 2200 | 570 |
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2—Traylor T-12 Bulldog Gyratory.
8 in. Traylor T, Gyratory, Telsmith No. 9.
17 Gates K—Nos. 2, 4, 5, 6, 7½, 8 & 9½.
10 Inch Austin Model 105.
6, 10 & 13 Inch Superior McCullys.
KENNEDY: Nos. 19, 25, 27, 39 & 49.
16″ Traylor.
7 Ft., 5 Ft., 4 Ft., 3 Ft. and 2 Ft. Symons Cone.

### MIXERS—PAVERS

5—1 yd. 2 yd. & 3 yd. Mixers.
3—Ransome & Rex 34E Dual Drum.
5—Koehring & Smith 27E Pavers.

### HOISTING ENGINES

7 Gasoline 15, 40, 60 & 100 H.P.
17 Steam 7x10, 8¼x10 and 10x12.
8 Electric 20, 35, 50, 60, 100 & 150 H.P.

### HAMMER MILLS

4 Jeffreys: 24x18-A, 36x24-B, 42x36-E & 42x48-B.
Williams No. 1 Jumbo Jr., & No. 6 Universal.
Nos. 4, 6 & 8 Williams Jumbo.
No. 36 Am. Ring Roll.
Greundler No. 6X.

### ASPHALT EQUIPMENT

7—750 & 1000 Gal. Distributor Trucks.
3—1000 Lb. & 2000 Lb. Pug Mixers.
6—3, 5, & 10 Ton Asphalt Rollers.
5—½, 1, & 2 Ton Asphalt Plants.

### DIESEL ENGINES

60 HP Fairbanks Morse.
140 HP Fairbanks Morse.
200 HP Atlas.
225 HP Chicago Pneumatic

### DIESEL GENERATORS

480 K.W. Cooper Bessemer 2400 v.
343 K.W. F.M. 3/60/480 v.
240 K.W. F.M. 3/60/2300 v.
300 K.W. Worthington 3/60/2400 v.
125 K.W. F.M. 250 v. D.C.
30 K.W. Buda 110 v.

### RAYMOND MILL

5 Roll High Side.

### CONVEYOR PARTS

BELT: 1000 Ft. 60 In., 700 Ft. 42 In., 600 Ft. 36 In., 800 Ft. 30 In., 1642 Ft. 24 In., 517 Ft. 20 In., 297 Ft. 18 In., 1000 Ft. 14 In. & 16 In.
IDLERS: 36 In., 30 In., 24 In., 20 In., 18 In.
Head & Tail—Pulleys—Takeup for all sizes.
Steel Frames: 2,000 Ft. 24 In., 30 In. & 36 In. Sections.

### ROTARY DRYERS AND KILNS

36 In. x 20 Ft., 3 Ft. x 30 Ft., 4 Ft. x 30 Ft., 54 In. x 30 Ft., 42 In. x 24 Ft., 5 Ft. x 30 Ft., 5 Ft. x 16 Ft., 5 Ft. x 60 Ft., 6 Ft. x 60 Ft., 6 Ft. x 70 Ft., 70 In. x 40 Ft., 8x30 & 8x84 Double Shell Dryers, 8x110, 7½x100, 8x125 & 10x20 Kilns.

### STEEL DERRICKS

GUY: 8 Ton 85 Ft. Boom, 15 Ton 100 Ft. Boom, 20 Ton 115 Ft. Boom, 50 Ton 100 Ft. Boom.
STIFF LEG: 5 Ton 70 Ft. Boom, 15 Ton 100 Ft. Boom, 25 Ton 100 Ft. Boom, 75 Ton 135 Ft. Boom.

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DIESEL: 7—4½, 8 and 15 Ton.
GASOLINE: 3 Ton, 5 Ton, 8 Ton, 12, 14 & 30 Ton.
STEAM: 9 Ton, 20 Ton, 40 Ton, 60 Ton & 80 Ton.
ELECTRIC: 2 Ton, 5 Ton, 8 Ton, 17 Ton & 40 Ton.

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VIBRATING: 2x4, 3x6, 2x8, 3x8, 3x5, 4x5, 4x8, 4x10, 48x72, HUMMER, ROTEX, NIAGARA & ROBINS, LINK BELT & HURON.
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### ASPHALT TANKS

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100—8000 gal. cap. Tank Cars.
12—50 Ton Cap. Battleship Gondolas.
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75—40 Ton Box Cars.

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11x26, 15x24, 18x32.

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½-yd., gas, ¾ swing, Insley Type C, 17′ boom, 12′6″ dipper stick. Also skimmer attachment.

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Double Side Dump 3/16″ plate Construction, Electric Propelled with 10 H.P. Direct current, 230 Volt Motor Complete with drum controller and emergency brake. Size 7′ long, 5′ wide, 5′ high—mounted on 2 sets of 24″ Gauge trucks.

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6 Ton Battery Electrics 36″ ga.
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BESSER STANDARD STRIPPER
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2—135 K.W., AC Generators, direct connected to Fairbanks Morse Diesel engines

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Factory site for sale or long lease on ACL R. R.

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Quarry Car Friction Hoist—3 yard with motor drive
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1—1½ yd. Blaw-Knox Mixer
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Both Horizontal type.
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1—3′ Symons with coarse bowl
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2—4′x6x16″ and 6′x22″, iron lined.
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2—Dorr Combination Bowl & Rake Classifiers, 10′ dia. with 2′3″x19′8″ rake and 12′ dia. with 2′3″x21′4″ rake.

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1—24″x40″ Pennsylvania, single roll.
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1—30″x24′ long, heavy steel frame, semi-portable.
1—30″x120′ c/c, Rex-Stearns anti-friction idlers; steel frame.
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50″ x 24″ Champion Jaw Crusher
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3-Worm Speed Reducers—925 to 1, heavy duty, 15 HP
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Two—120 H.P. Diesel Caterpillar D 13000 Engines connected to 150 K.W. Generator rebuilt and in excellent condition with Tex Rope drive, now operating. Price $7500 FOB Truck. Ohio delivery.

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1—Besser Super Tamper complete with Vee-Belt drive and motor, automatic pallet feeder, front conveyor and attachment to make 7¾ x 7¾ x 15¾ units, including parts, halves, steel sash and corners.
1—Attachment to make 11¾ x 7¾ x 15¾ units.
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1—Rock face attachment to make rock face on all the above attachments.
2500—Steel Pallets.
1—60 cubic foot mixer.
Block machine purchased June 1942, same as new.

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Pullshovel Attach. for Lorain 75A or B.
20 ton Plymouth Loco.-Gas-Std. Ga.
50 HP Electric Hoists.
1 Yd. Round Shaft Buckets.
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2 Sturtevant Ring Roll Mill
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## BOX CAR LOADER
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Pratt Portable — Size No. 1.

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1—2600 Ft. Sullivan 60 cy. motor
1—1570 Ft. 100 lb., Worth., 60 cy. motor
1—1400 Ft. Sullivan, Belted
1—1051 Ft. Sullivan, 60 cy. motor

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2—125 HP Winton, 240 V. 60 cy. gen.

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Pioneer semi-portable stone plant, with 24″ x 36″ roller bearing jaw crusher, 40″ x 10′ grizzly feeder, D13000 Caterpillar diesel power unit; 54 x 24 roller bearing roll crusher, 24″ x 100′ conveyor, 4′ x 12′ triple deck vibrating screen, 3 compartment steel bin, 30″ x 15′ conveyor, 18″ x 10′ return conveyor, D17000 Caterpillar diesel power unit, complete plant with drives, spouts, hoppers, etc. New in 1942. Excellent condition.

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P&H Model 600 crawler gas crane, dragline and shovel, boom 50′, 1 yard capacity.
Northwest Model 105 Diesel crawler combination shovel and dragline, with new Caterpillar 8800 Diesel engine, 1 yard capacity.
20-B Bucyrus crawler gas crane, ¾ yard capacity.
3 ton Austin Pup gas roller, guaranteeed condition.

All the above overhauled, ready for work.

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1—4-Ton Gas Locomotive, 36″ Ga. Milwaukee Locomotive Works
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1—10-Ton, 0-4-0 Davenport, Diesel
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2—60-Ton, Baldwin-Westinghouse Electric Locomotive, 1500 D. C., New 1927
1—60-Ton, Westinghouse Electric Locomotive, 550 volt, D. C.
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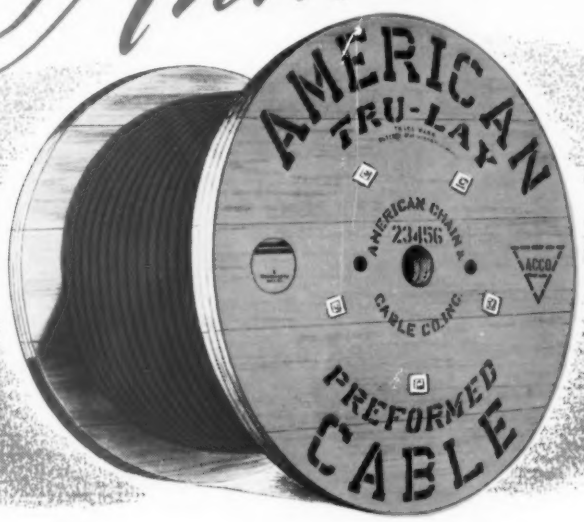


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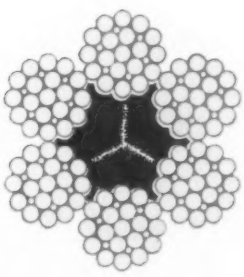

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